

I, BRUCE D. BEAVERS, CERTIFY THAT THIS SURVEY WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL FIELD SURVEY MADE UNDER MY SUPERVISION; THAT THIS GROUND SURVEY WAS PERFORMED AT THE 95% PERCENT CONFIDENCE LEVEL TO MEET FEDERAL GEOGRAPHIC DATA COMMITTEE STANDARDS; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS FOR A TOPOGRAPHIC/PLANIMETRIC SURVEY TO THE ACCURACY OF CLASS AA, AND THAT THE FIELD DATA WAS COMPLETED ON DECEMBER 20, 2021; THAT THE SURVEY MAPPING WAS COMPLETED ON DECEMBER 23, 2021; AND ALL COORDINATES ARE BASED ON NC NAD 83/2011 AND ALL ELEVATIONS ARE BASED ON NAVD 88.

Bruce D. Beavers 08-09-2024
 BRUCE D. BEAVERS PLS L-3451



NOTES:

1. PROPERTIES ARE BASED ON FIELD SURVEY BUT NO TITLE COMMITMENT SEARCH HAS BEEN PERFORMED.
2. THIS DRAWING REPRESENTS THE EXISTING CONDITIONS AS OF DECEMBER 20, 2021.
3. SURVEYED BY: STANTEC CONSULTING SERVICES INC.
4. SURVEY DATE: DECEMBER 23, 2021
5. HORIZONTAL DATUM: NAD83/2011 NC STATE PLANE US SURVEY FEET.
6. VERTICAL DATUM: NAVD 88, GEOID 12A.
7. THIS MAP DOES NOT VERIFY THE EXISTENCE OF, NOR CERTIFY THE LOCATION OF ANY JURISDICTIONAL WETLANDS THAT MAY EXIST ON OR NEAR THE PROPERTY.
8. UNDERGROUND UTILITIES ARE SHOWN PER LEVEL "B" AND "C".

SURVEY CONTROL POINTS:
 4
 60d NAIL
 N=721,356.694'
 E=2,044,143.864'
 EL=490.157'
 1945
 PK NAIL
 N=721,609.258'
 E=2,044,120.016'
 EL=494.203'
 1946
 SPIKE NAIL
 N=721,758.847'
 E=2,044,150.966'
 EL=500.329'
 3431
 60d NAIL
 N=721,503.452'
 E=2,043,739.163'
 EL=484.196'



4969 Centre Pointe Dr, Suite 200
 North Charleston, SC 29418
 843-740-7700

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LEGEND

- PROPERTY LINE
- - - EASEMENT
- FOUND IP, AXLE OR PK NAIL

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

Transportation Engineering	Planning
Building Inspections	Planning - Transportation
Water Resources - Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

Revision By Appd. Y.Y.MM.DD

07 SIGNATURE_SET	--	24.08.09
06 TRC_6TH_SUBMITTAL	--	24.07.29
05 TBC_5TH_SUBMITTAL	--	24.05.31
04 TRC_4TH_SUBMITTAL	--	24.04.01
03 TRC_3RD_SUBMITTAL	--	24.03.01
02 TRC_2ND_SUBMITTAL	--	22.03.1
01 TRC_1ST_SUBMITTAL	--	22.02.0

Issued By Appd. Y.Y.MM.DD

Permit-Seal

Client/Project
 TOWN OF APEX

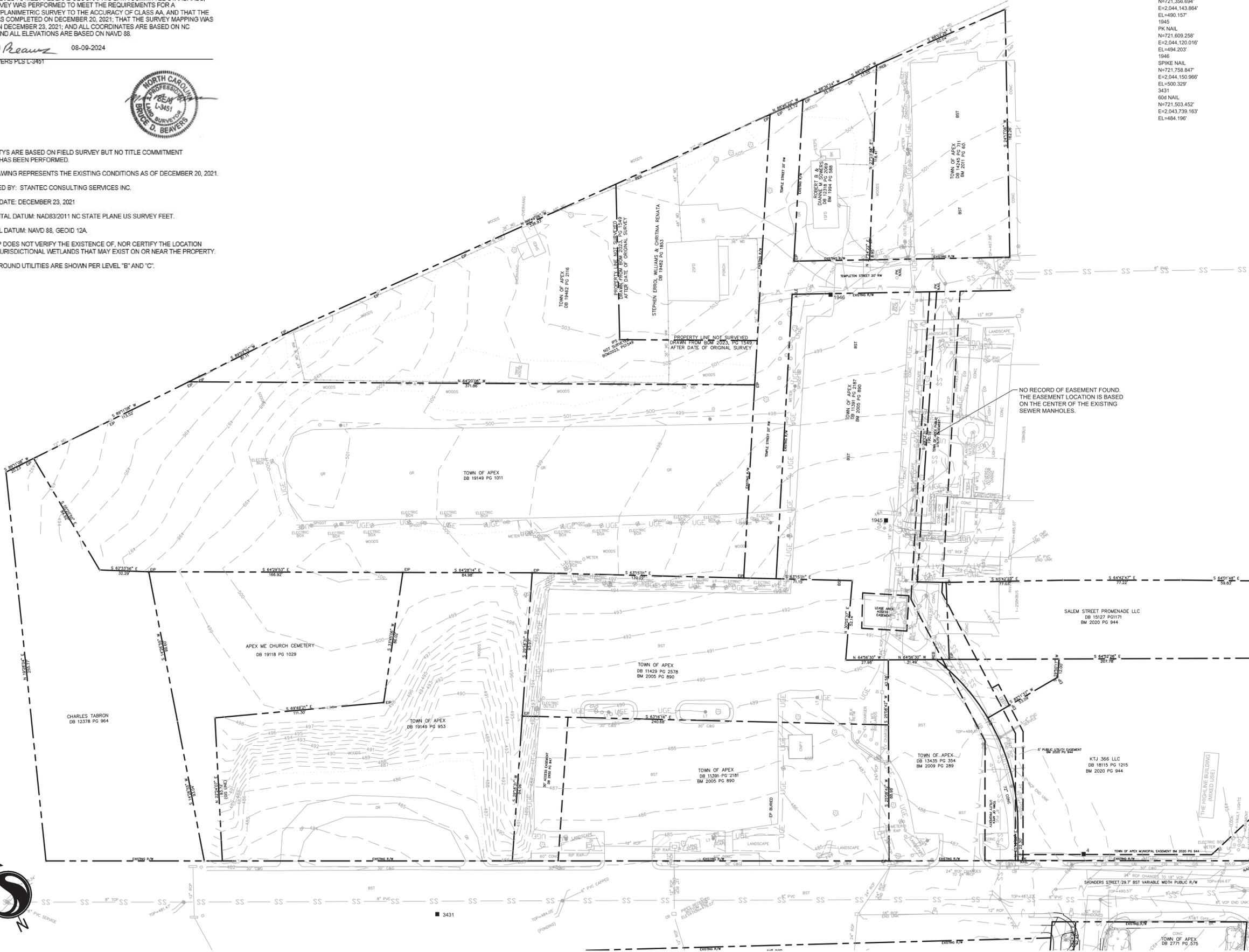
SAUNDERS STREET
 PARKING LOT
 APEX, NC

Title
 EXISTING CONDITIONS

Project No. 178440238 Scale 1" = 30'-0"

Drawing No. VF100 Sheet 2 of 45 Revision 0

0



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 2024/08/07 11:40 PM By: hvn, Alena

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Revision By Appd. Y1MM.D1

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Issued By Appd. Y1MM.D1

Permit Seal



8-8-24

Client/Project
TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

Title
DEMOLITION PLAN

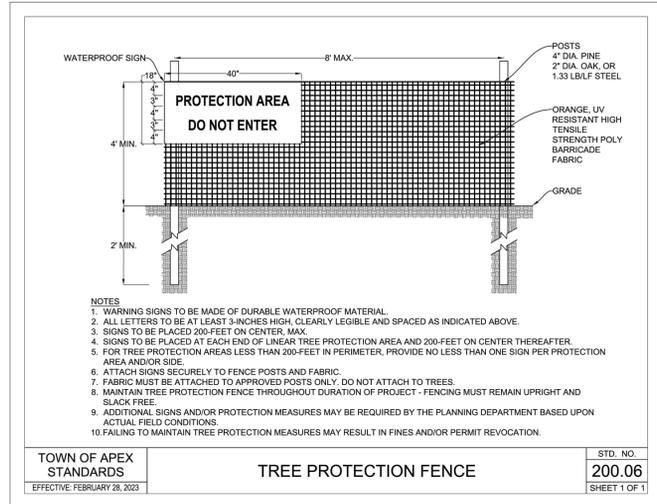
Project No. 178440238 Scale 1" = 30'-0"

Drawing No. Sheet Revision

CD100 3 of 45 0

CLEARING AND DEMOLITION:

- DEMOLITION INCLUDES THE FOLLOWING WITHIN THE PROPERTY LINES:
 - TRANSFER BENCHMARK CONTROL TO NEW LOCATIONS OUTSIDE THE DISTURBED AREA PRIOR TO COMMENCING DEMOLITION OPERATIONS (WHEN APPLICABLE).
 - PROVIDE TEMPORARY BARRICADES AND OTHER FORMS OF PROTECTION AS REQUIRED TO PROTECT OWNER'S PERSONNEL AND GENERAL PUBLIC FROM INJURY DUE TO DEMOLITION WORK.
 - DEMOLITION AND REMOVAL OF SITE IMPROVEMENTS.
 - DISCONNECTING, CAPPING OR SEALING, AND ABANDONING/REMOVING SITE UTILITIES IN PLACE (WHICHEVER IS APPLICABLE).
- ALL DEMOLISHED MATERIALS (EXCLUDING FOREIGN ITEMS AS LISTED IN 'GENERAL') BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE DESIGNATED BY THE OWNER'S REP. DISPOSE OF OFF THE OWNER'S PROPERTY AT NO ADDITIONAL COST.
- ALL PAVEMENT, BASE COURSES, SIDEWALKS, CURBS, ETC., THAT ARE REMOVED SHALL BE REMOVED TO FULL DEPTH. ALL PAVEMENT, SIDEWALK, AND CURB SHALL BE SAW CUT IN ORDER TO OBTAIN NEAT LINES AND SMOOTH TRANSITIONS TO NEW SURFACES.
- ALL ITEMS OF CONSTRUCTION REMAINING AND NOT SPECIFICALLY MENTIONED THAT INTERFERES WITH THE NEW CONSTRUCTION SHALL BE REMOVED AS DIRECTED BY THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST.
- CONTRACTOR SHALL PROVIDE PROTECTION TO ALL STREETS, TREES, UTILITIES, AND STRUCTURES THAT ARE TO REMAIN. CONTRACTOR-CAUSED DAMAGE WILL BE REPAIRED TO LOCAL STANDARDS AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL CONFORM TO ALL LOCAL CODES AND OBTAIN ALL PERMITS PRIOR TO BEGINNING WORK.
- NO TREES ARE TO BE REMOVED AND/OR VEGETATION DISTURBED EXCEPT AS NECESSARY FOR DEMOLITION PURPOSES AND ONLY WITH PRIOR APPROVAL FROM THE OWNER'S REPRESENTATIVE.
- OBTAIN APPROVED BORROW SOIL MATERIALS OFF-SITE.
- STORAGE OR SALE OF REMOVED ITEMS OR MATERIALS ON-SITE WILL NOT BE PERMITTED.
- DO NOT START DEMOLITION WORK UNTIL UTILITY DISCONNECTING AND SEALING HAVE BEEN COMPLETED AND VERIFIED IN WRITING.
- REMOVE, REMOVE AND LEGALLY DISPOSE OF ITEMS EXCEPT THOSE INDICATED TO BE REINSTALLED, SALVAGED, OR TO REMAIN.
- REMOVE, REINSTALL, AND RELOCATE REMOVE ITEMS INDICATED; CLEAN, SERVICE, AND OTHERWISE PREPARE THEM FOR REUSE; STORE AND PROTECT AGAINST DAMAGE.
- EXISTING TO REMAIN: PROTECT ITEMS INDICATED TO REMAIN AGAINST DAMAGE AND SOILING THROUGHOUT CONSTRUCTION. WHEN PERMITTED BY THE ENGINEER, ITEMS MAY BE REMOVED TO A SUITABLE, PROTECTED STORAGE LOCATION THROUGHOUT CONSTRUCTION AND THEN CLEANED AND REINSTALLED IN THEIR ORIGINAL LOCATIONS.
- REGULATORY REQUIREMENTS: COMPLY WITH GOVERNING EPA NOTIFICATION REGULATIONS BEFORE STARTING DEMOLITION. COMPLY WITH HAULING AND DISPOSAL REGULATIONS OF AUTHORITIES HAVING JURISDICTION.
- CONTRACTOR SHALL SCHEDULE DEMOLITION ACTIVITIES WITH THE CONSTRUCTION/PROJECT MANAGER INCLUDING THE FOLLOWING:
 - DETAILED SEQUENCE OF DEMOLITION AND REMOVAL WORK, INCLUSIVE OF STARTING AND ENDING DATES FOR EACH ACTIVITY.
 - DATES FOR SHUTOFF, CAPPING, AND CONTINUATION OF UTILITY SERVICES.
 - IDENTIFY AND ACCURATELY LOCATE UTILITIES AND OTHER SUBSURFACE STRUCTURAL, ELECTRICAL OR MECHANICAL CONDITIONS.
- MAINTAIN EXISTING UTILITIES INDICATED TO REMAIN IN SERVICE AND PROTECT THEM AGAINST DAMAGE THROUGHOUT CONSTRUCTION OPERATIONS.
- DO NOT INTERRUPT EXISTING UTILITIES SERVING OCCUPIED OR OPERATING FACILITIES, EXCEPT WHEN AUTHORIZED IN WRITING BY ENGINEER AND AUTHORITIES HAVING JURISDICTION. PROVIDE TEMPORARY SERVICES DURING INTERRUPTIONS TO EXISTING UTILITIES, AS ACCEPTABLE TO OWNER AND TO GOVERNING AUTHORITIES.
- UTILITY REQUIREMENTS: LOCATE, IDENTIFY, DISCONNECT, AND SEAL OR CAP OFF INDICATED UTILITY SERVICES SERVING THE SITE.
 - ARRANGE TO SHUT OFF AND CAP UTILITIES WITH UTILITY COMPANIES AND FOLLOW THEIR RESPECTIVE UTILITY KILL AND CAP POLICIES.
 - ALL EXISTING UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND ARE TO BE VERIFIED BY CONTRACTOR. LOSE DESIGN DOES NOT ACCEPT ANY RESPONSIBILITY FOR THE ACCURACY OF EXISTING UTILITIES INDICATED ON THE CONSTRUCTION DOCUMENTS. VERIFY LOCATION OF EXISTING UTILITIES AND EXERCISE EVERY PRECAUTION WHEN WORKING ON OR NEAR THESE AREAS TO AVOID DAMAGE TO THESE EXISTING FACILITIES. UTILITY LINES MAY BE ENCOUNTERED IN EXCAVATION THAT WERE NOT KNOWN OR SHOWN TO EXIST. SO CAUTION SHALL BE TAKEN IN ALL EXCAVATIONS. ACTIVE OR INACTIVE UTILITIES ENCOUNTERED BY THE CONTRACTOR SHALL BE HANDLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY COMPANIES.
- CONDUCT DEMOLITION OPERATIONS TO PREVENT INJURY TO PEOPLE AND DAMAGE TO ADJACENT BUILDINGS AND FACILITIES TO REMAIN. ENSURE SAFE PASSAGE OF PEOPLE AROUND DEMOLITION AREA.
 - ERECT TEMPORARY PROTECTION, BARRICADES AS PER LOCAL GOVERNING AUTHORITIES.
 - PROTECT EXISTING SITE IMPROVEMENTS AND APPURTENANCES TO REMAIN.
- EXPLOSIVES: USE OF EXPLOSIVES WILL NOT BE PERMITTED.
- REMOVE AND TRANSPORT DEBRIS IN A MANNER THAT WILL PREVENT SPILLAGE ON ADJACENT SURFACES AND AREAS.
- CLEAN ADJACENT BUILDINGS AND IMPROVEMENT OF DUST, DIRT, AND DEBRIS CAUSED BY DEMOLITION OPERATIONS. RETURN ADJACENT AREAS TO CONDITION EXISTING BEFORE START OF DEMOLITION.
- DAMAGES: PROMPTLY REPAIR DAMAGES TO ADJACENT FACILITIES CAUSED BY DEMOLITION OPERATIONS AT THE CONTRACTORS COST.
- GENERAL: PROMPTLY DISPOSE OF DEMOLISHED MATERIALS. DO NOT ALLOW DEMOLISHED MATERIALS TO ACCUMULATE ON-SITE.
- BURNING: DO NOT BURN DEMOLISHED MATERIALS.
- CONDUCT DEMOLITION OPERATIONS AND REMOVE DEBRIS TO ENSURE MINIMUM INTERFERENCE WITH EXISTING FACILITIES.
- DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, OR OTHER ADJACENT OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM OWNER AND AUTHORITIES HAVING JURISDICTION. PROVIDE ALTERNATE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS IF REQUIRED BY GOVERNING REGULATIONS.
- PROVIDE TEMPORARY FENCES, BARRICADES, COVERINGS OR OTHER PROTECTIONS TO PRESERVE EXISTING ITEMS INDICATED TO REMAIN AND TO PREVENT INJURY OR DAMAGE TO PERSONS OR PROPERTY. APPLY PROTECTIONS TO ADJACENT PROPERTIES AS REQUIRED.

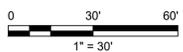
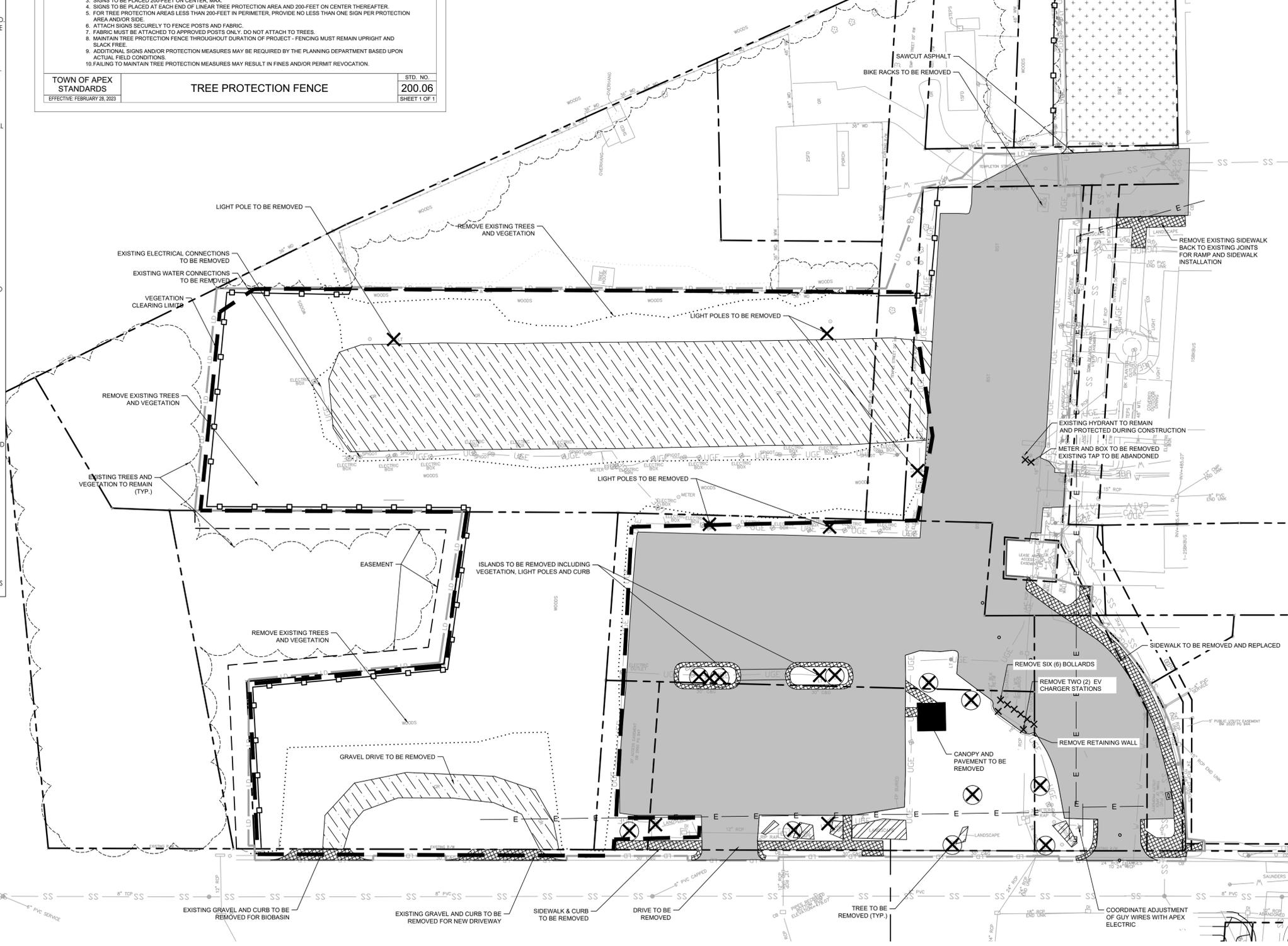


- NOTES**
- WARNING SIGNS TO BE MADE OF DURABLE WATERPROOF MATERIAL.
 - ALL LETTERS TO BE AT LEAST 3-INCHES HIGH, CLEARLY LEGIBLE AND SPACED AS INDICATED ABOVE.
 - SIGNS TO BE PLACED 200-FEET ON CENTER, MAX.
 - SIGNS TO BE PLACED AT EACH END OF LINEAR TREE PROTECTION AREA AND 200-FEET ON CENTER THEREAFTER.
 - FOR TREE PROTECTION AREAS LESS THAN 200-FEET IN PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER PROTECTION AREA AND/OR SIDE.
 - ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC.
 - FABRIC MUST BE ATTACHED TO APPROVED POSTS ONLY. DO NOT ATTACH TO TREES.
 - MAINTAIN TREE PROTECTION FENCE THROUGHOUT DURATION OF PROJECT - FENCING MUST REMAIN UPRIGHT AND SLACK FREE.
 - ADDITIONAL SIGNS AND/OR PROTECTION MEASURES MAY BE REQUIRED BY THE PLANNING DEPARTMENT BASED UPON ACTUAL FIELD CONDITIONS.
 - FAILING TO MAINTAIN TREE PROTECTION MEASURES WILL BE RESULT IN FINES AND/OR PERMIT REVOCATION.

TOWN OF APEX STANDARDS	TREE PROTECTION FENCE	STD. NO.
EFFECTIVE: FEBRUARY 28, 2023		200.06
		SHEET 1 OF 1

LEGEND

- ASPHALT PAVEMENT TO BE REMOVED
- ASPHALT PAVEMENT TO BE SEAL COAT
- DEMO GRAVEL PAVEMENT
- DEMO CONCRETE
- DEMO STRUCTURE
- DEMO LANDSCAPE
- DEMO TREE
- DEMO SITE ELEMENT
- TREE PROTECTION FENCING
- VEGETATION CLEARING LIMITS



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LEGEND

- PROPERTY LINE - - - - -
- RIGHT OF WAY - - - - -
- LIMIT OF DISTURBANCE - - - - -
- CENTERLINE ROAD - - - - -
- PLANT BED PB

SIGN LEGEND

- 1 STOP SIGN (R1-1) (30"X30")
- 2 DOUBLE SIDED PEDESTRIAN SIGN (W11-2 & W16-7P)
- 3 'NO OVERNIGHT PARKING' SIGN

NOTE: SEE DETAIL 3/CS502 FOR SIGNAGE INSTALLATION DETAILS

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Electric	

Revision By Appd. Y1MM.DD

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03 TRC_3RD_SUBMITTAL	--	24.03.08
02 TRC_2ND_SUBMITTAL	--	22.03.11
01 TRC_1ST_SUBMITTAL	--	22.02.01

Issued By Appd. Y1MM.DD

Permit-Seal



8-13-24

Client/Project

TOWN OF APEX

SAUNDERS STREET PARKING LOT
APEX, NC

Title

SITE PLAN

Project No. 178440238 Scale 1" = 30'-0"

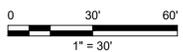
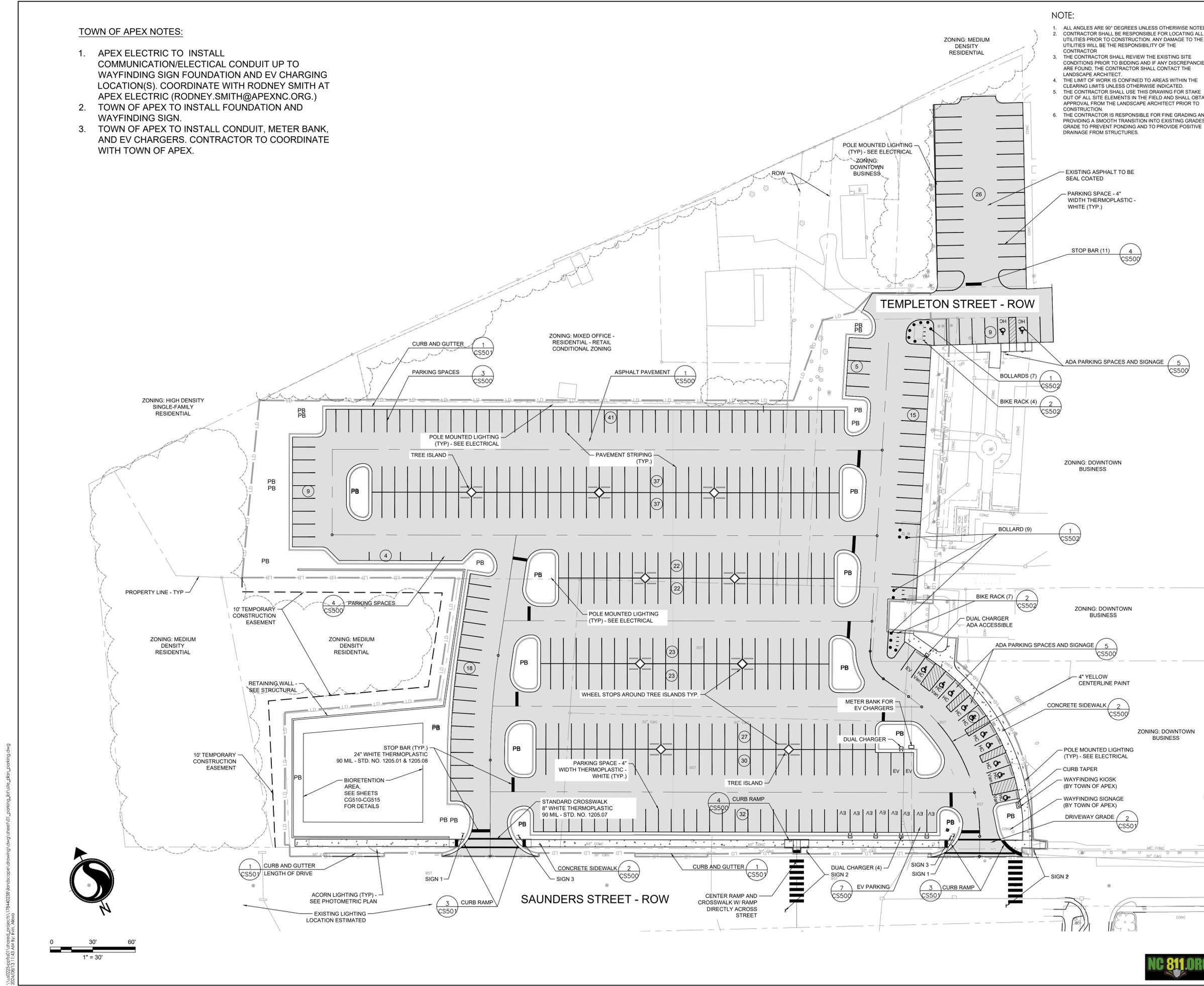
Drawing No. CS100 Sheet 4 of 45 Revision 0

TOWN OF APEX NOTES:

1. APEX ELECTRIC TO INSTALL COMMUNICATION/ELECTICAL CONDUIT UP TO WAYFINDING SIGN FOUNDATION AND EV CHARGING LOCATION(S). COORDINATE WITH RODNEY SMITH AT APEX ELECTRIC (RODNEY.SMITH@APEXNC.ORG.)
2. TOWN OF APEX TO INSTALL FOUNDATION AND WAYFINDING SIGN.
3. TOWN OF APEX TO INSTALL CONDUIT, METER BANK, AND EV CHARGERS. CONTRACTOR TO COORDINATE WITH TOWN OF APEX.

NOTE:

1. ALL ANGLES ARE 90° DEGREES UNLESS OTHERWISE NOTED.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES PRIOR TO CONSTRUCTION. ANY DAMAGE TO THE UTILITIES WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. THE CONTRACTOR SHALL REVIEW THE EXISTING SITE CONDITIONS PRIOR TO BIDDING AND IF ANY DISCREPANCIES ARE FOUND, THE CONTRACTOR SHALL CONTACT THE LANDSCAPE ARCHITECT.
4. THE LIMIT OF WORK IS CONFINED TO AREAS WITHIN THE CLEARING LIMITS UNLESS OTHERWISE INDICATED.
5. THE CONTRACTOR SHALL USE THIS DRAWING FOR STAKE OUT OF ALL SITE ELEMENTS IN THE FIELD AND SHALL OBTAIN APPROVAL FROM THE LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION.
6. THE CONTRACTOR IS RESPONSIBLE FOR FINE GRADING AND PROVIDING A SMOOTH TRANSITION INTO EXISTING GRADES. GRADE TO PREVENT PONDING AND TO PROVIDE POSITIVE DRAINAGE FROM STRUCTURES.



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 2024/08/13 11:43 AM By: Kim, Alana

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6. THE CONTRACTOR IS RESPONSIBLE FOR FINE GRADING AND PROVIDING A SMOOTH TRANSITION INTO EXISTING GRADES. GRADE TO PREVENT PONDING AND TO PROVIDE POSITIVE DRAINAGE FROM STRUCTURES.

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LEGEND

- PROPERTY LINE - - - - -
- RIGHT OF WAY - - - - -
- PLANT BED PB

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Electric	

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Permit Seal



8-8-24
Client/Project
TOWN OF APEX

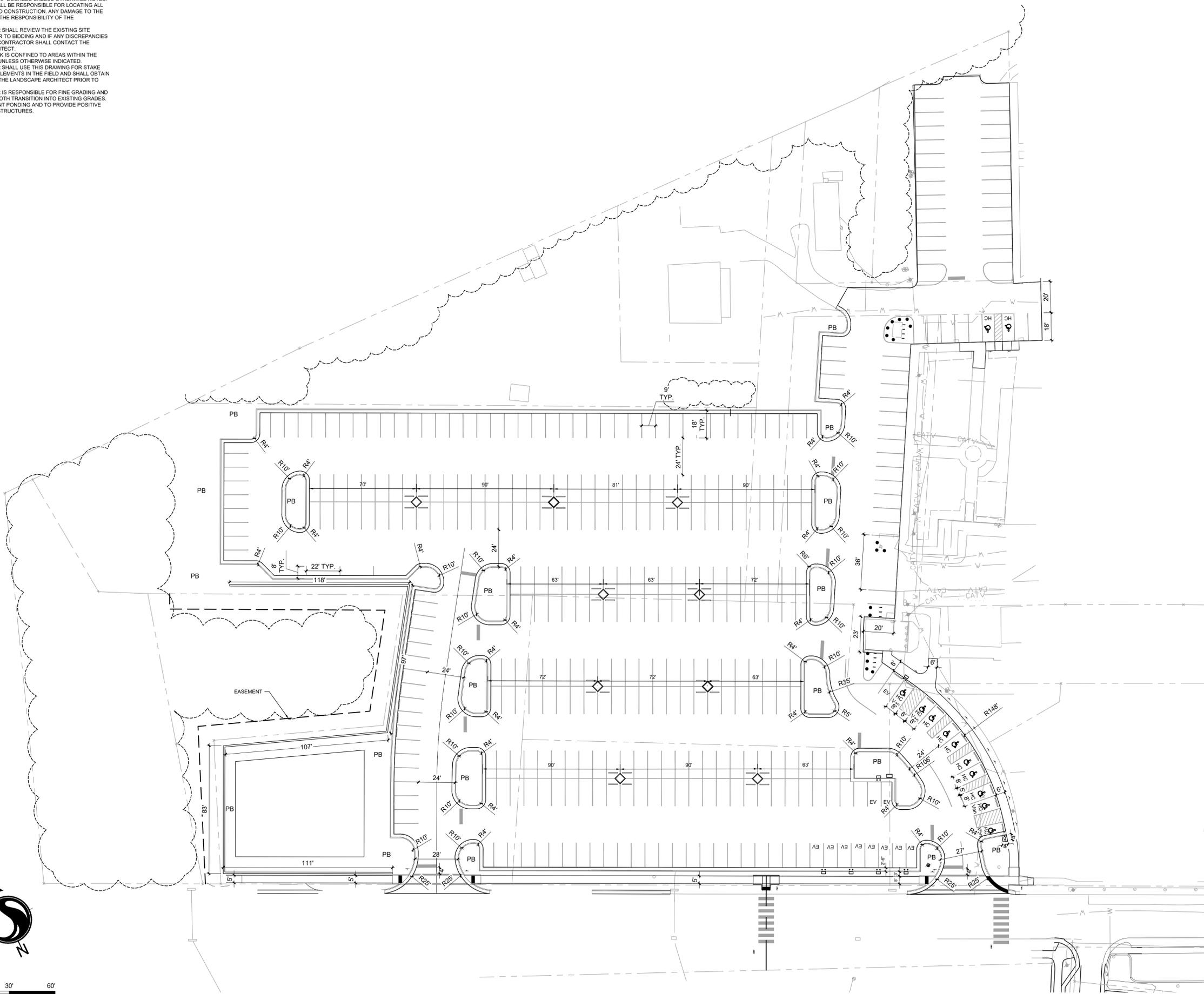
SAUNDERS STREET
PARKING LOT
APEX, NC

Title
SITE LAYOUT PLAN

Project No. 178440238 Scale 1" = 30'-0"

Drawing No. Sheet Revision

CS101 5 of 45 0

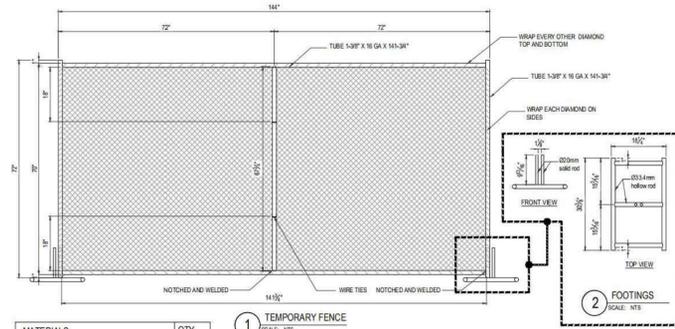


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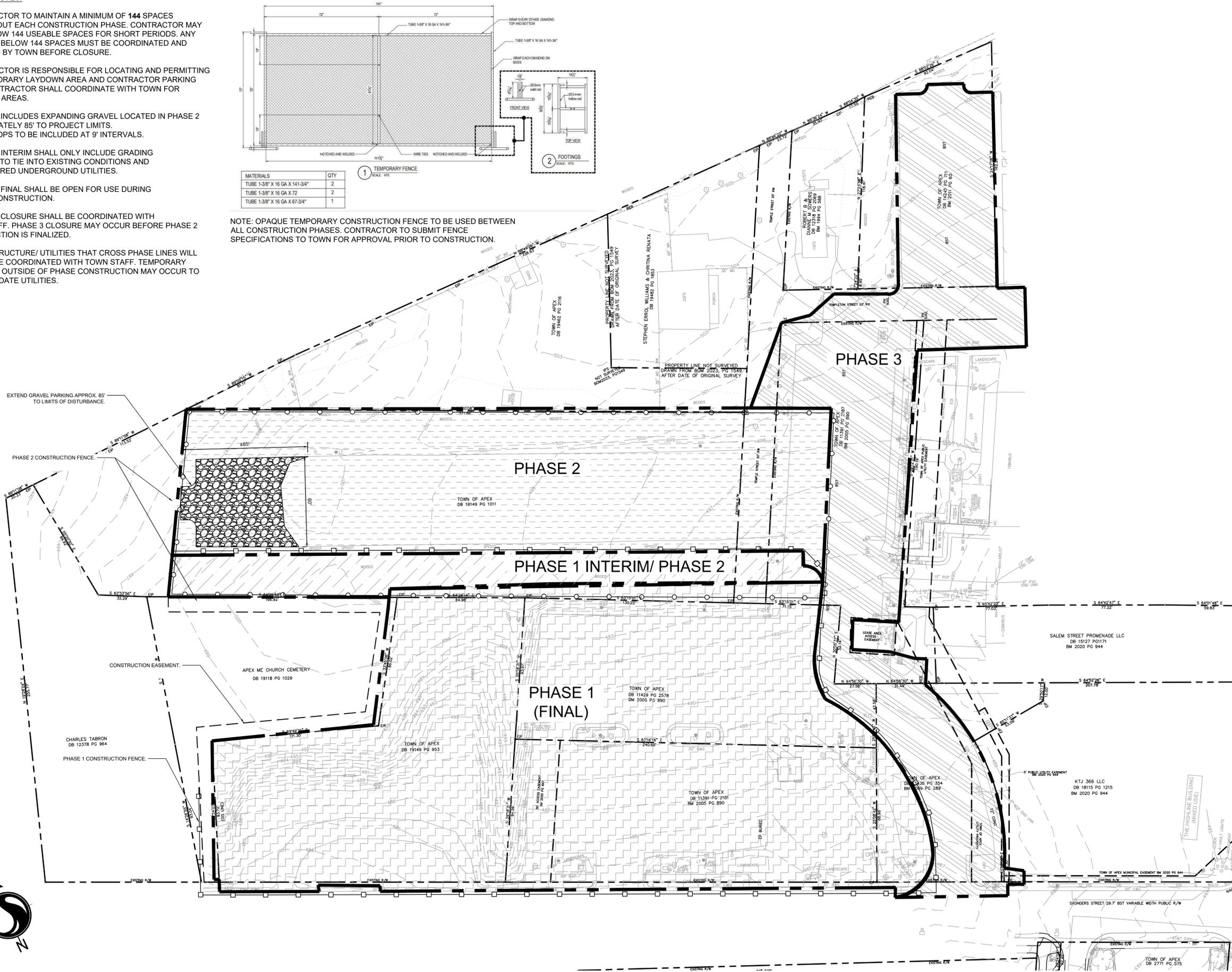
PHASING NOTES:

- CONTRACTOR TO MAINTAIN A MINIMUM OF 144 SPACES THROUGHOUT EACH CONSTRUCTION PHASE. CONTRACTOR MAY DROP BELOW 144 USEABLE SPACES FOR SHORT PERIODS. ANY DEVIATION BELOW 144 SPACES MUST BE COORDINATED AND APPROVED BY TOWN BEFORE CLOSURE.
- CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PERMITTING FOR TEMPORARY LAYDOWN AREA AND CONTRACTOR PARKING AREA. CONTRACTOR SHALL COORDINATE WITH TOWN FOR AVAILABLE AREAS.
- PHASE 1 INCLUDES EXPANDING GRAVEL LOCATED IN PHASE 2 APPROXIMATELY 85' TO PROJECT LIMITS. WHEEL STOPS TO BE INCLUDED AT 9' INTERVALS.
- PHASE 1 INTERIM SHALL ONLY INCLUDE GRADING REQUIRED TO TIE INTO EXISTING CONDITIONS AND ANY REQUIRED UNDERGROUND UTILITIES.
- PHASE 1 FINAL SHALL BE OPEN FOR USE DURING PHASE 2 CONSTRUCTION.
- PHASE 3 CLOSURE SHALL BE COORDINATED WITH TOWN STAFF. PHASE 3 CLOSURE MAY OCCUR BEFORE PHASE 2 CONSTRUCTION IS FINALIZED.
- INFRASTRUCTURE/ UTILITIES THAT CROSS PHASE LINES WILL NEED TO BE COORDINATED WITH TOWN STAFF. TEMPORARY CLOSURES OUTSIDE OF PHASE CONSTRUCTION MAY OCCUR TO ACCOMMODATE UTILITIES.



MATERIALS	QTY
TUBE 1-3/8" X 16 GA X 141-3/4"	2
TUBE 1-3/8" X 16 GA X 72"	2
TUBE 1-3/8" X 16 GA X 67-3/4"	1

NOTE: OPAQUE TEMPORARY CONSTRUCTION FENCE TO BE USED BETWEEN ALL CONSTRUCTION PHASES. CONTRACTOR TO SUBMIT FENCE SPECIFICATIONS TO TOWN FOR APPROVAL PRIOR TO CONSTRUCTION.



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LEGEND

- PHASE 1
- PHASE 1 INTERIM/ PHASE 2
- PHASE 2
- PHASE 3
- PHASE LINE
- PROPERTY LINE
- EASEMENT
- TEMPORARY CONSTRUCTION FENCE (PHASE 1)
- TEMPORARY CONSTRUCTION FENCE (PHASE 2)

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Client/Project
TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

Title
PHASING PLAN-EXISTING CONDITIONS

Project No. 178440238	Scale 1" = 30'-0"
Drawing No.	Sheet 6 of 45
	Revision 0

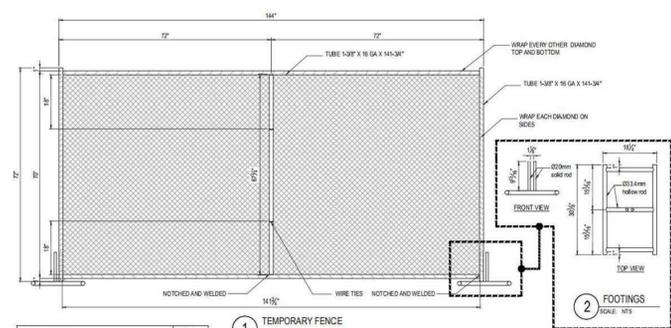
CS102 6 of 45 0

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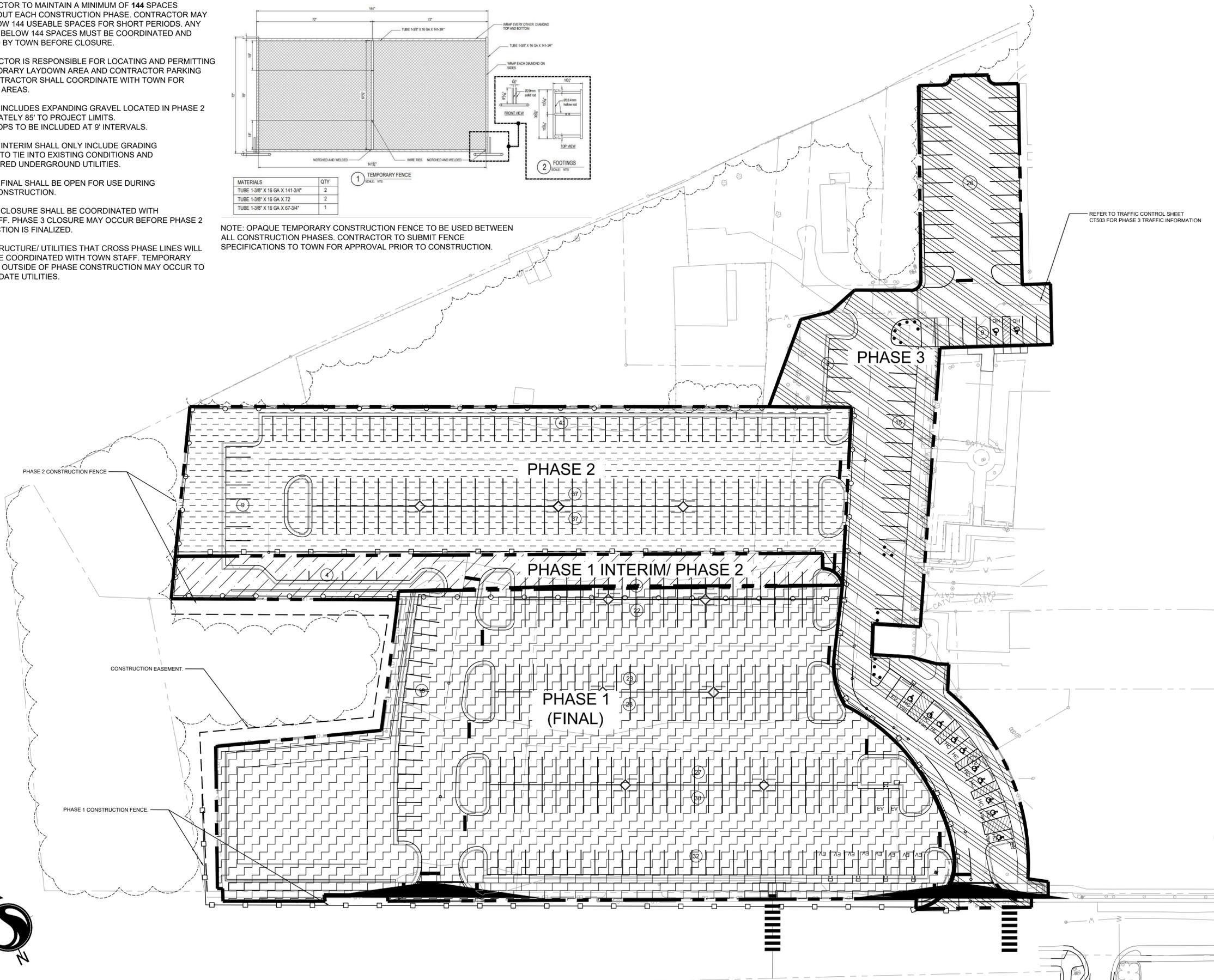


PHASING NOTES:

- CONTRACTOR TO MAINTAIN A MINIMUM OF 144 SPACES THROUGHOUT EACH CONSTRUCTION PHASE. CONTRACTOR MAY DROP BELOW 144 USEABLE SPACES FOR SHORT PERIODS. ANY DEVIATION BELOW 144 SPACES MUST BE COORDINATED AND APPROVED BY TOWN BEFORE CLOSURE.
- CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PERMITTING FOR TEMPORARY LAYDOWN AREA AND CONTRACTOR PARKING AREA. CONTRACTOR SHALL COORDINATE WITH TOWN FOR AVAILABLE AREAS.
- PHASE 1 INCLUDES EXPANDING GRAVEL LOCATED IN PHASE 2 APPROXIMATELY 85' TO PROJECT LIMITS. WHEEL STOPS TO BE INCLUDED AT 9' INTERVALS.
- PHASE 1 INTERIM SHALL ONLY INCLUDE GRADING REQUIRED TO TIE INTO EXISTING CONDITIONS AND ANY REQUIRED UNDERGROUND UTILITIES.
- PHASE 1 FINAL SHALL BE OPEN FOR USE DURING PHASE 2 CONSTRUCTION.
- PHASE 3 CLOSURE SHALL BE COORDINATED WITH TOWN STAFF. PHASE 3 CLOSURE MAY OCCUR BEFORE PHASE 2 CONSTRUCTION IS FINALIZED.
- INFRASTRUCTURE/ UTILITIES THAT CROSS PHASE LINES WILL NEED TO BE COORDINATED WITH TOWN STAFF. TEMPORARY CLOSURES OUTSIDE OF PHASE CONSTRUCTION MAY OCCUR TO ACCOMMODATE UTILITIES.



NOTE: OPAQUE TEMPORARY CONSTRUCTION FENCE TO BE USED BETWEEN ALL CONSTRUCTION PHASES. CONTRACTOR TO SUBMIT FENCE SPECIFICATIONS TO TOWN FOR APPROVAL PRIOR TO CONSTRUCTION.



REFER TO TRAFFIC CONTROL SHEET CT503 FOR PHASE 3 TRAFFIC INFORMATION

LEGEND

- PHASE 1
- PHASE 1 INTERIM/ PHASE 2
- PHASE 2
- PHASE 3
- PHASE LINE
- PROPERTY LINE
- EASEMENT
- TEMPORARY CONSTRUCTION FENCE (PHASE 1)
- TEMPORARY CONSTRUCTION FENCE (PHASE 2)

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

Transportation Engineering	Planning
Building Inspections	Planning - Transportation
Water Resources - Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

Revision By Appd. Y/M/M/D

07 SIGNATURE_SET	--	24.08.09
06 TRC_6TH_SUBMITTAL	--	24.07.29
05 TRC_5TH_SUBMITTAL	--	24.05.31
04 TRC_4TH_SUBMITTAL	--	24.04.01
03 TRC_3RD_SUBMITTAL	--	24.03.01
02 TRC_2ND_SUBMITTAL	--	22.03.1
01 TRC_1ST_SUBMITTAL	--	22.02.0

Issued By Appd. Y/M/M/D

Permit Seal

 8-8-24

Client/Project
 TOWN OF APEX
 SAUNDERS STREET
 PARKING LOT
 APEX, NC

Title
 PHASING PLAN-PROPOSED CONDITIONS

Project No. 178440238	Scale 1" = 30'-0"
Drawing No.	Sheet 7 of 45
	Revision 0

CS103 7 of 45 0



\\u0252pplad\shared_projects\178440238_landscapes\drawing\dwg\sheet\01_parking_lot\phasing_plan_proposed.dwg
 2024/08/07 11:57 PM by hvn, alexa

RETAINING WALL NOTES:

- COORDINATE ALL RETAINING WALL LOCATIONS, DIMENSIONS, AND WALL HEIGHTS WITH CIVIL SITE DRAWINGS.
- SEE DETAIL 5 ON SHEET S-503 FOR CONTROL JOINT SPACING AT RETAINING WALLS. CONTROL JOINT SPACING MAX 20'-0" C/C. CONTRACTOR TO PROVIDE CONTROL JOINT SPACING LAYOUT TO ENGINEER OR RECORD FOR APPROVAL PRIOR TO CONSTRUCTION.
- SEE S-500 FOR GENERAL NOTES AND DESIGN GUIDELINES FOR SITE RETAINING WALLS.
- STEP FOOTING LOCATIONS MAY CHANGE BASED ON FINAL COORDINATED GRADING PLAN. CONTRACTOR TO COORDINATE TOP OF FOOTING WITH FINAL GRADING PLAN ELEVATIONS.
- CONTRACTOR TO COORDINATE RETAINING WALL DRAINAGE WITH CIVIL DRAWINGS AND SITE DRAINAGE.
- CONCRETE RETAINING WALLS TO BE INTEGRALLY TINTED MEDIUM BROWN.

ZONING: HIGH DENSITY SINGLE-FAMILY RESIDENTIAL

ZONING: MEDIUM DENSITY RESIDENTIAL

PROPERTY LINE - TYP

EASEMENT



SAUNDERS STREET - ROW



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North Charleston, SC 29418
843-740-7700

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LEGEND

STORM

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Transportation Engineering	Planning
Building Inspections	Planning - Transportation
Water Resources - Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

Revision By Appd. YY.MM.DD

07 SIGNATURE SET	--	--	24.08.09
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04 TRC_4TH_SUBMITTAL	--	--	24.04.05
03 TRC_3RD_SUBMITTAL	--	--	24.03.08
02 TRC_2ND_SUBMITTAL	--	--	22.03.11
01 TRC_1ST_SUBMITTAL	--	--	22.02.01

Issued By Appd. YY.MM.DD

Permit-Seal



8-8-24

Client/Project
TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

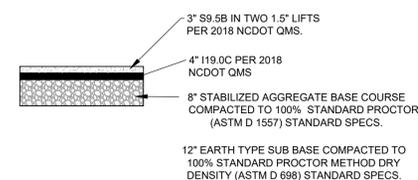
Title
PARKING LOT RETAINING WALLS PLAN

Project No. 178440238 Scale 1" = 20'-0"

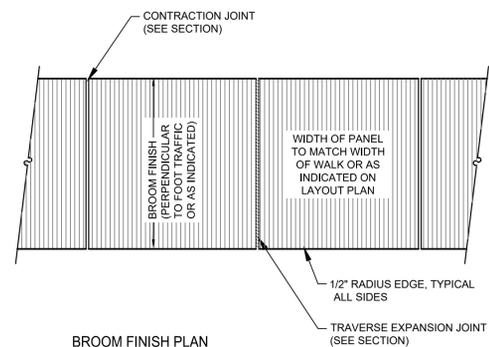
Drawing No. Sheet Revision

CS110 8 of 45 0

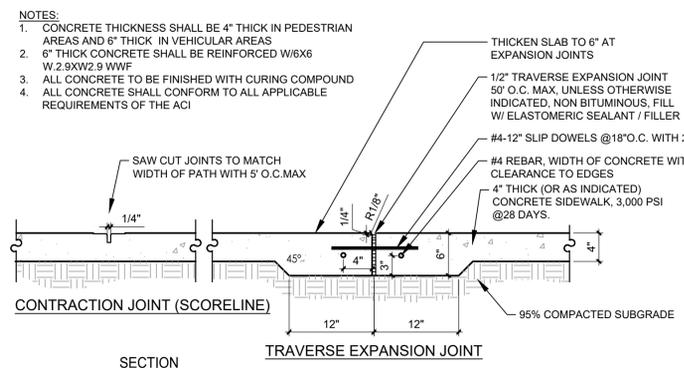
\\s0225pc01\shared_projects\178440238\landscaping\dwg\sheet\01_parking_lot\site_plan_parking_retaining_walls.dwg 2024/08/08 12:10 AM By: John Aldea



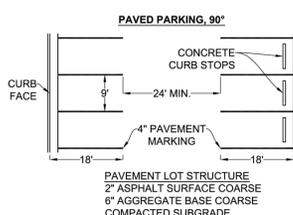
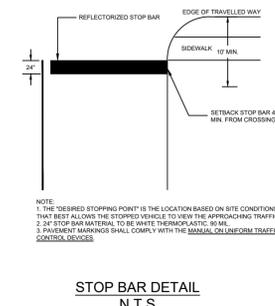
1 ASPHALT PAVEMENT
SCALE: N.T.S.



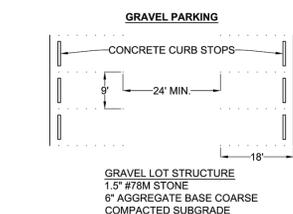
2 CONCRETE SIDEWALK
SCALE: AS NOTED



4 STOP BAR DETAIL
SCALE: N.T.S.



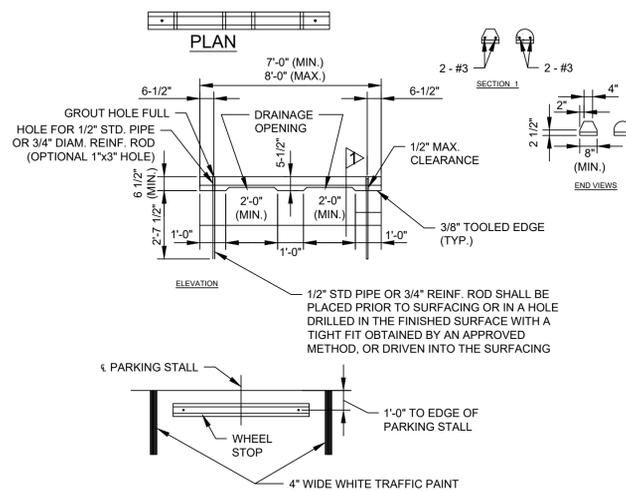
- NOTES FOR PAVED PARKING LOTS:**
1. CONCRETE STOP NOT REQUIRED IF CURB IS USED. IF SIDEWALK IS AGAINST BACK OF CURB, A MINIMUM 6\"/>



- NOTES FOR GRAVEL PARKING LOTS:**
1. DRIVE AISLES MUST BE REPAIRED OR REPLACED WITH #78M STONE EVERY SIX (6) MONTHS.

TOWN OF APEX STANDARDS	STD. NO. 200.04
EFFECTIVE: FEBRUARY 28, 2023	SHEET 1 OF 2

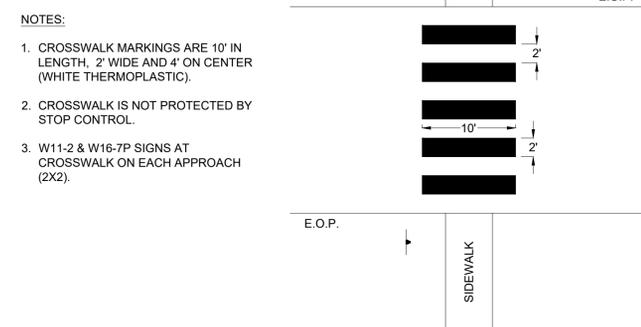
3 PARKING SPACES
SCALE: N.T.S.



CONCRETE WHEEL STOP
N.T.S.

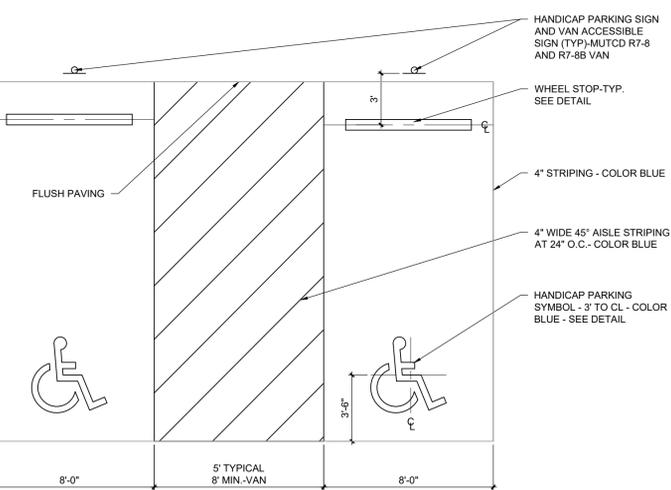
TOWN OF APEX STANDARDS	STD. NO. 300.19
EFFECTIVE: NOVEMBER 20, 2007	SHEET 1 OF 1

6 MID-BLOCK CROSSWALK
SCALE: N.T.S.

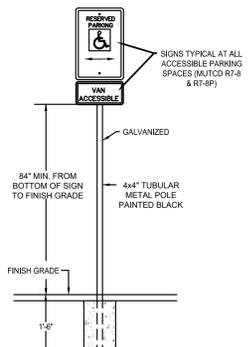


- NOTES:**
1. CROSSWALK MARKINGS ARE 10\"/>

TOWN OF APEX STANDARDS	STD. NO. 300.19
EFFECTIVE: NOVEMBER 20, 2007	SHEET 1 OF 1

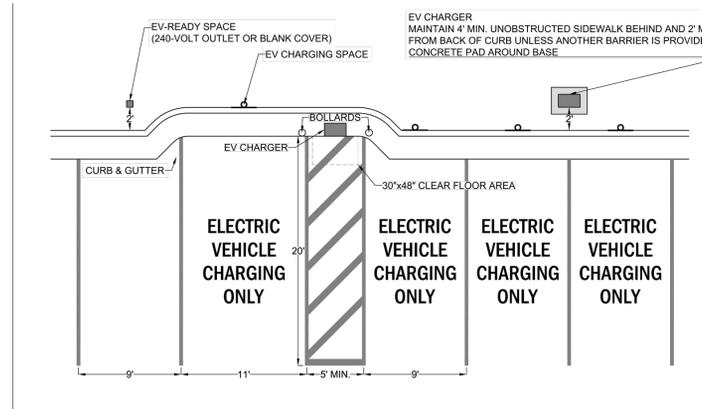


- AMERICANS WITH DISABILITIES ACT:**
- 1.) DISABLE ACCESSIBLE ROUTES SHALL START AT HANDICAP PARKING AND GO INTO THE PRIMARY ENTRANCE OF ALL NEW OR RENOVATED BUILDING OR TENANT SPACES. IT IS ALSO REQUIRED THAT THE PARKING SPACE AND ITS ADJACENT AISLE BE RELATIVELY LEVEL, LESS THAN 2%.



- NOTES:**
1. BOTTOM OF HANDICAP PARKING SIGN TO BE MOUNTED MIN. 60\"/>

5 ADA PARKING SPACES AND SIGNAGE
SCALE: AS NOTED



TOWN OF APEX STANDARDS	STD. NO. 200.07
EFFECTIVE: APRIL 9, 2024	SHEET 1 OF 1

7 ELECTRIC VEHICLE PARKING
SCALE: AS NOTED

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Transportation Engineering	Planning
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Electric	

Revision By Appd. Y.Y.MM.DD

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01 TRC_1ST_SUBMITTAL	--	22.02.0

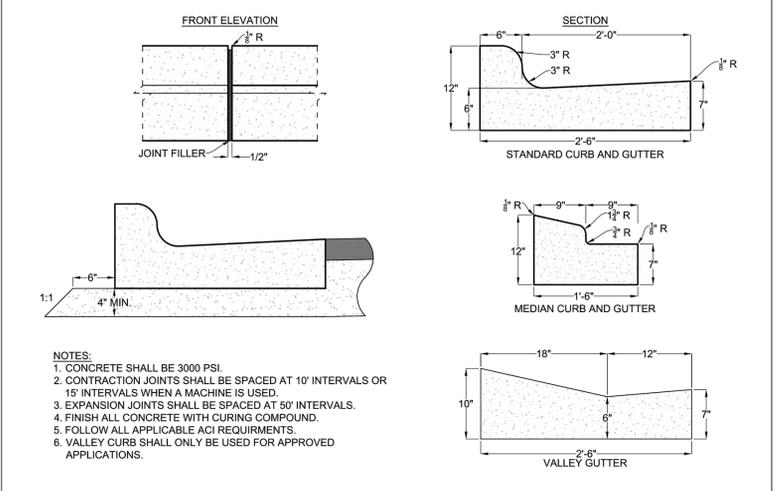
Issued By Appd. Y.Y.MM.DD



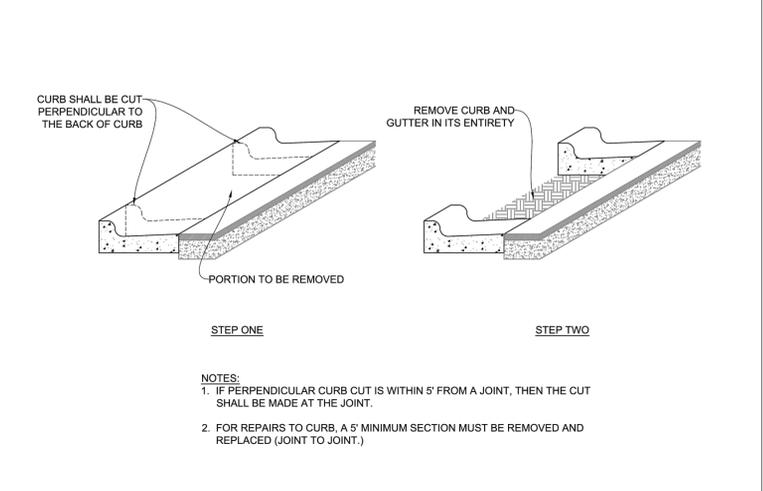
8-8-24
Client/Project
TOWN OF APEX
SAUNDERS STREET PARKING LOT
APEX, NC

Title
SITE PLAN DETAILS

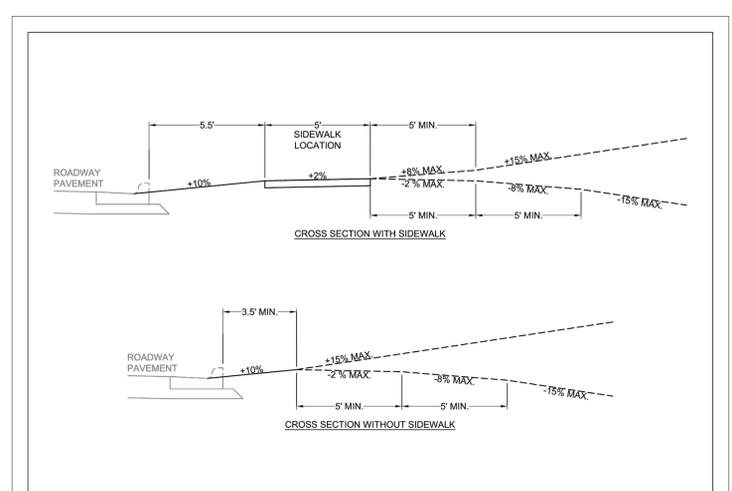
Project No. 178440238	Scale AS NOTED
Drawing No.	Sheet
	Revision



TOWN OF APEX STANDARDS CONCRETE CURB AND GUTTER STD. NO. 300.03 SHEET 1 OF 1
EFFECTIVE: FEBRUARY 28, 2023



TOWN OF APEX STANDARDS METHOD OF REMOVING EXISTING CURB STD. NO. 300.04 SHEET 1 OF 1
EFFECTIVE: APRIL 12, 2022



TOWN OF APEX STANDARDS DRIVEWAY GRADES STD. NO. 300.28 SHEET 1 OF 1
EFFECTIVE: SEPTEMBER 4, 2018

1 CONCRETE CURB AND GUTTER
SCALE: AS NOTED

2 DRIVEWAY GRADES
SCALE: AS NOTED

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Transportation Engineering	Planning
Building Inspections	Planning - Transportation
Water Resources - Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

Revision By Appd. Y1MM.D1

07 SIGNATURE_SET	--	24.08.09
06 TRC_6TH_SUBMITTAL	--	24.07.29
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03 TRC_3RD_SUBMITTAL	--	24.03.01
02 TRC_2ND_SUBMITTAL	--	22.03.1
01 TRC_1ST_SUBMITTAL	--	22.02.0

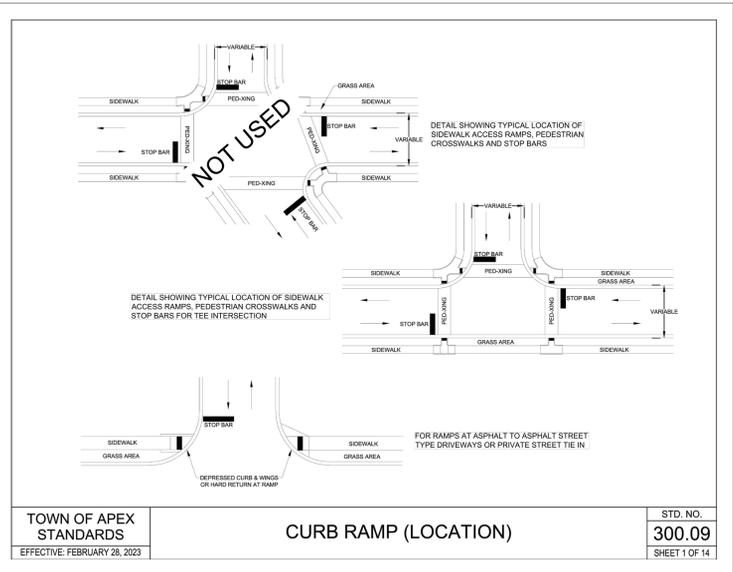
Issued By Appd. Y1MM.D1



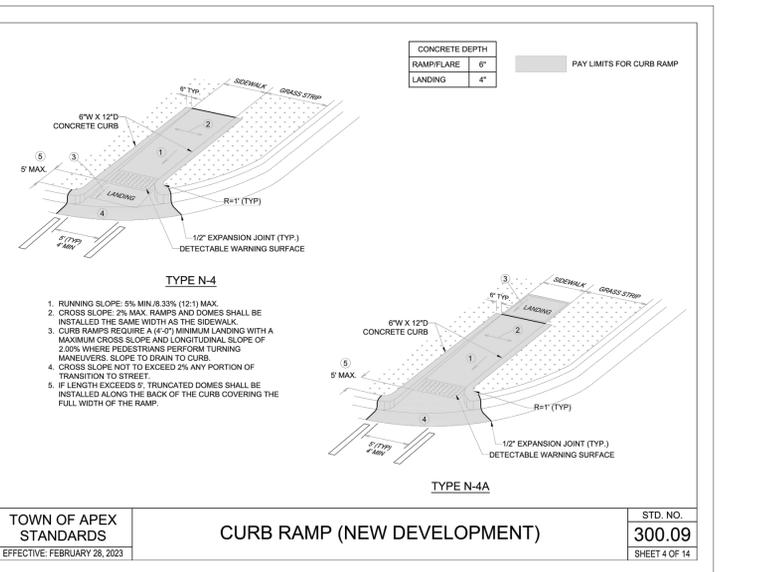
Client/Project TOWN OF APEX
SAUNDERS STREET PARKING LOT
APEX, NC

Site Plan Details

Project No. 178440238	Scale AS NOTED
Drawing No. CS501	Sheet 10 of 45



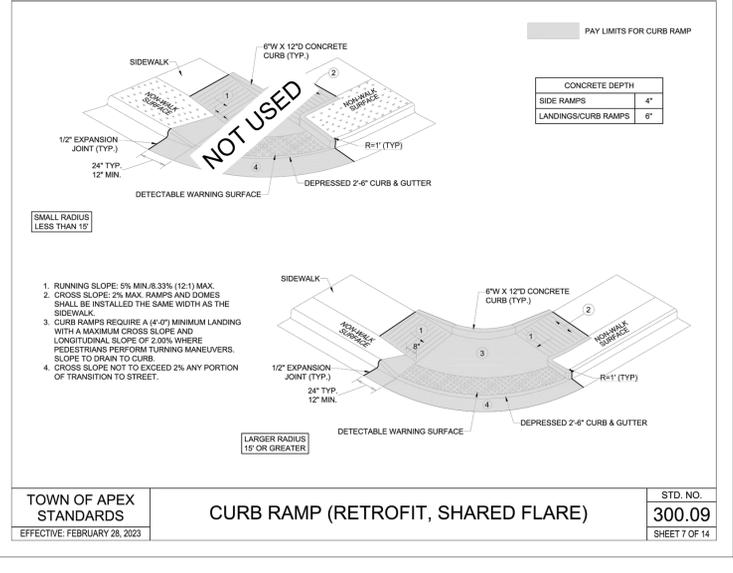
TOWN OF APEX STANDARDS CURB RAMP (LOCATION) STD. NO. 300.09 SHEET 1 OF 14
EFFECTIVE: FEBRUARY 28, 2023



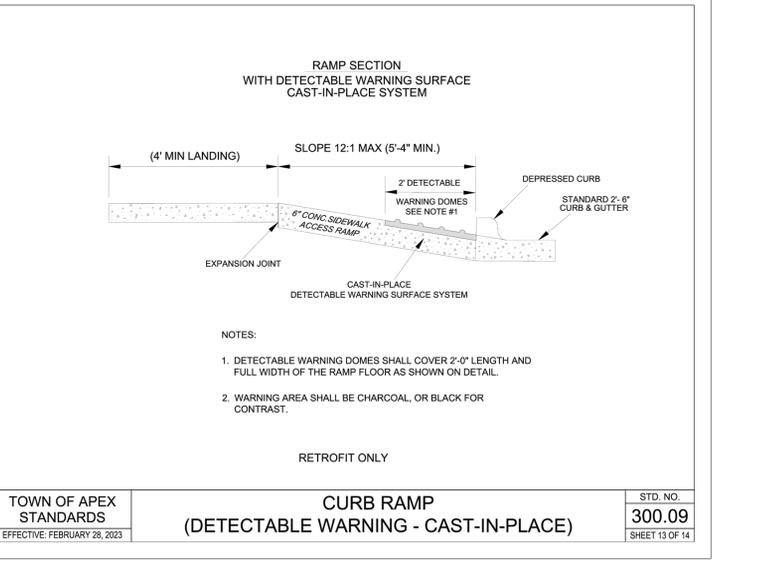
TOWN OF APEX STANDARDS CURB RAMP (NEW DEVELOPMENT) STD. NO. 300.09 SHEET 4 OF 14
EFFECTIVE: FEBRUARY 28, 2023

- CURB RAMP (GENERAL NOTES)**
- STANDARD CURB RAMPS HAVE BEEN DEVELOPED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA) AND PUBLIC RIGHT OF WAY ACCESS GUIDELINES (PROWAG).
 - CURB RAMPS SHALL BE PROVIDED AT LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. SIDEWALK ACCESS RAMPS SHALL BE LOCATED AS INDICATED IN THE DETAIL, HOWEVER, THE LOCATION MAY BE ADJUSTED WHERE EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. AFFECT PLACEMENT.
 - THE WALKING SURFACE SHALL BE SLIP RESISTANT. THE COLOR FOR THE DETECTABLE WARNING AREA SHALL BE GRAY, CHARCOAL, OR BLACK FOR CONTRAST.
 - RUNNING SLOPE OF RAMPS SHALL BE 5 PERCENT MINIMUM AND 8.3 PERCENT MAXIMUM BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FEET.
 - IN NO CASE SHALL THE WIDTH OF THE SIDEWALK ACCESS RAMP BE LESS THAN 48". ALL RAMPS SHALL BE INSTALLED AT THE SAME WIDTH AS THE SIDEWALK.
 - USE CLASS A (3,000 PSI) CONCRETE WITH A SIDEWALK FINISH IN ORDER TO OBTAIN A ROUGH NONSKID SURFACE.
 - A 1/2" EXPANSION JOINT INSTALLED FULL DEPTH WILL BE REQUIRED WHERE THE CONCRETE SIDEWALK ACCESS RAMP JOINS THE CURB AND ALSO WHERE NEW CONCRETE ABUTS EXISTING CONCRETE.
 - CURB RAMPS SHOULD BE PLACED PARALLEL TO THE DIRECTION OF TRAVEL.

TOWN OF APEX STANDARDS CURB RAMP (GENERAL NOTES) STD. NO. 300.09 SHEET 14 OF 14
EFFECTIVE: FEBRUARY 28, 2023



TOWN OF APEX STANDARDS CURB RAMP (RETROFIT, SHARED FLARE) STD. NO. 300.09 SHEET 7 OF 14
EFFECTIVE: FEBRUARY 28, 2023



TOWN OF APEX STANDARDS CURB RAMP (DETECTABLE WARNING - CAST-IN-PLACE) STD. NO. 300.09 SHEET 13 OF 14
EFFECTIVE: FEBRUARY 28, 2023

3 CURB RAMP
SCALE: N.T.S.



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3110 70TH AVENUE EAST
TACOMA, WA 98404 USA
TOLL FREE: 1-877-335-4638
PHONE: (253) 284-8000
FAX: (253) 284-8000
www.pexco.com/traffic

SELECT DESIRED HEIGHT:
 18"
 24"
 30"
 CUSTOM (SEE NOTE 4)

SELECT DESIRED COLOR:
 WHITE
 YELLOW
 FLUORESCENT ORANGE
 BLACK

SELECT DESIRED REFLECTIVE SHEETING:
 ADHESION RESISTANT AN 1000
 3M FLEX GARDEN SPACE
 3M FLEXIBLE HP

EACH POST REQUIRES 4 ICA ANCHORS
CONCRETE PVA BROWANCHOR COIL
ANCHOR 7' O.P.
ASPHALT PVA BROWANCHOR COIL
ANCHOR 7' O.P.

MANUFACTURER NOTES:
 1. FLUORESCENT COLORS ARE RECOMMENDED FOR APPLICATIONS REQUIRING THE HIGHEST VISIBILITY.
 2. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
 3. DO NOT SCALE DRAWING.
 4. THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR INFORMATION PURPOSES ONLY. THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION.
 5. ALL INFORMATION CONTAINED HEREIN IS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.
 6. CONTRACTORS MUST VISIT PRODUCT AND COMPANY INFORMATION VISIT www.CADsystems.com/pev6 AND ENTER REFERENCE NUMBER 06_04

CITY POST: SURFACE MOUNT MODEL SM
CITY POST 30" SURFACE MOUNT

REVISION DATE: 06/06/2004
CADsystems.com

1 FIXED BOLLARD
SCALE: N.T.S.

2 BIKE RACK
SCALE: N.T.S.

Loclock
New Traffic Control
30" High
Material: Polyethylene + Composite (HDP)
Weight: 10kg

1 RACK
3 RACKS

SIDEWALK

NOTES:
 1. BASIS OF DESIGN: DURBANIS - LOCLOCK (OR APPROVED EQUAL).
 2. COLOR: CONTRACTOR SHALL SUBMIT RANGE OF AVAILABLE COLORS AND PRODUCT CUT SHEET FOR APPROVAL BY OWNER, LANDSCAPE ARCHITECT.
 3. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
 4. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR APPROVAL BY LANDSCAPE ARCHITECT.

TYPICAL REGULATORY SIGNS

SIGN SIZES	APPROACH TYPE	
	SINGLE LANE	MULTI-LANE
R1-1 (STOP)	30" x 30"	36" x 36"
R1-2 (YIELD)	36" x 36" x 36"	48" x 48" x 48"
R5-1 (DO NOT ENTER)	30" x 30"	36" x 36"
R2-1 (SPEED LIMIT)	24" x 30"	30" x 36"

CROSSWALK SIGNS

SIGN SIZES	APPROACH TYPE	
	SINGLE LANE	MULTI-LANE
W11-2 (PEDESTRIAN)	30" x 30"	36" x 36"
S1-1 (SCHOOL)	36" x 36"	36" x 36"
W16-7P (ARROW PLAQUE)	24" x 12"	24" x 12"
R1-5 (YIELD HERE TO Peds)	36" x 36"	36" x 36"
R1-6/R1-6B (IN-STREET CROSSING)	12" x 36"	12" x 36"

POST-MOUNTED STREET NAME SIGN (D3-1)

SIGN TYPE	SIGN DIMENSIONS					
	A	B	C	D	E	F
STANDARD	9"	6"	1.5"	4"	0.75"	0.5"
MULTI-LANE (> 40 MPH)	12"	8"	2"	6"	0.75"	0.5"

NOTES:
 1. SHEETING MATERIAL FOR ALL SIGNS SHALL BE HIGH INTENSITY PRISMATIC (HIP) TYPE IV MULTILAYER SHEETING.
 2. ALL STREET NAME SIGNS INSTALLED IN RESIDENTIAL AREAS SHALL COMPLY WITH STANDARD DIMENSIONS. STREET NAME SIGNS SHALL BE GREEN WITH WHITE LEGEND AND BORDER. LETTERING SHALL BE COMPOSED OF UPPER AND LOWER-CASE LETTERS. LOWER-CASE LETTERS SHALL BE 75% THE HEIGHT OF UPPER-CASE LETTERS. STREET SUFFIXES SHALL BE UPPER-CASE LETTERS. FONT TYPE SHALL BE HIGHWAY GOTHIC SERIES C. 36-INCH BLADES SHALL BE STANDARD FOR STREET NAMES, WITH 15 CHARACTERS OR LESS.
 3. STREET NAME SIGNS SHALL BE FABRICATED USING WHITE (HIP) SHEETING AS A BASE LAYER WITH GREEN (HIP) SHEETING OVERLAYERED. THE LEGEND SHALL BE DIGITALLY CUT OR PRINTED FROM THE OVERLAY LAYER.
 4. SCHOOL CROSSING SIGNS SHALL HAVE A FLUORESCENT YELLOW-GREEN BACKGROUND WITH BLACK LEGEND AND BORDERS.
 5. IF IN-STREET CROSSING SIGNS ARE USED IN SCHOOL AREAS, R1-6B SIGN SHALL BE USED INSTEAD OF R1-6 SIGN.
 6. REFER TO MUTCD FOR ALL OTHER GUIDANCE.

TOWN OF APEX STANDARDS
EFFECTIVE: NOVEMBER 19, 2019

STREET SIGNS GENERAL
STD. NO. 300.26
SHEET 1 OF 4

SIGN PLACEMENT

SEE NOTE 1 - 12" MIN.
5' MIN.
2' MIN.
7' MIN.
2' MIN.
SEE NOTE 2
SEE NOTE 3
MAJOR ROAD
MINOR ROAD
6' TO 12' MIN.

SIGN MOUNTING DETAIL

1/4" HEX HEAD BOLT
SIGN FACE
NYLON WASHER
1/4" O.D.
3/8" I.D.
1/4" THICK
LOCK WASHER
LOCKING NUT
WINYLON INSERT
2" SQUARE POST

RETROFIT ASSEMBLY DETAIL (TOWN USE ONLY)

STREET SIGN FACE
1.5" SQUARE POST
3/8" RIVET BOLT
GRIP RANGE
3/16"-3/8"
LOCKING NUT
WINYLON INSERT
3-LB/F U CHANNEL POST
LOCK WASHER

NOTES:
 1. MINIMUM LATERAL OFFSET FROM EDGE OF TRAVELED WAY SHOULD BE 12 FEET.
 2. ON CURB SECTIONS PROVIDE A MINIMUM VERTICAL CLEARANCE OF 7 FEET FROM EDGE OF TRAVELED WAY. WHERE SIDEWALKS ARE PRESENT PROVIDE A MINIMUM VERTICAL CLEARANCE OF 7 FEET FROM EDGE OF TRAVELED WAY OR TOP OF SIDEWALK, WHICHEVER IS HIGHER.
 3. WHERE CROSSWALKS EXIST, SIGNS SHOULD BE PLACED WITHIN 4 FEET IN ADVANCE OF THE CROSSWALK. STREET NAME SIGNS MAY BE PLACED ABOVE A REGULATORY STOP OR YIELD SIGN WITH NO REQUIRED VERTICAL SEPARATION.
 4. ALL NEW SIGNS SHALL BE POSTED ON 14 GAUGE, 2" PERFORATED SQUARE SIGN POSTS. ALL STREET NAME SIGNS RETROFITTED TO EXISTING U-CHANNEL SHALL BE POSTED ON 1.5" SQUARE SIGN POSTS. SIGN RETROFITTING SHALL BE FOR TOWN USE ONLY.
 5. ON ALL ROADWAYS EXCEPT STREETS WITH STANDARD CURB AND GUTTER AND SPEED LIMITS EQUAL TO OR LESS THAN 25 MPH, ALL SIGNS WITHIN CLEAR ZONE SHALL BE OF A BREAKAWAY DESIGN THAT COMPLIES WITH THE LATEST EDITION OF AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) AND NCHRP REPORT 350.
 6. IN AREAS OF WEAK SOILS A BREAKAWAY ANCHOR UNIT SHALL BE USED AND BACKFILLED WITH CONCRETE, IF DETERMINED BY THE INSPECTOR.

TOWN OF APEX STANDARDS
EFFECTIVE: APRIL 9, 2024

STREET SIGNS PLACEMENT & INSTALLATION
STD. NO. 300.26
SHEET 2 OF 4

3 SIGNAGE
SCALE: N.T.S.

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

Transportation Engineering	Planning
Building Inspections	Planning - Transportation
Water Resources - Utility Engineering	Fire
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Electric	

Revision _____ By _____ Appd. _____

07 SIGNATURE_SET	--	--	24.08.09
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05 TBC_5TH_SUBMITTAL	--	--	24.05.31
04 TRC_4TH_SUBMITTAL	--	--	24.04.01
03 TRC_3RD_SUBMITTAL	--	--	24.03.01
02 TRC_2ND_SUBMITTAL	--	--	22.03.1
01 TRC_1ST_SUBMITTAL	--	--	22.02.0

Issued _____ By _____ Appd. _____

Permit Seal



Client/Project
TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

Title
SITE PLAN DETAILS

Project No.	Scale	
178440238	AS NOTED	
Drawing No.	Sheet	Revision

CS502 11 of 45 0



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Transportation Engineering	Planning
Building Inspections	Planning - Transportation
Water Resources - Utility Engineering	Fire
Water Resources Stormwater and S&E	Parks, Recreation & Cultural Resources
Electric	

Revision _____ By _____ Appd. _____ Y1MMDD

02 TRC_2ND_SUBMITTAL	-	-	22.03.11
01 TRC_1ST_SUBMITTAL	-	-	22.02.01

Issued _____ By _____ Appd. _____ Y1MMDD

Permit-Seal

Client/Project

TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

Title
EROSION CONTROL
NOTES

Project No. 178440238 Scale NTS

Drawing No. _____ Volume _____ Revision _____

CONSTRUCTION SEQUENCE

1. Obtain a Land Disturbing Permit.
2. Submit documentation required under the site NPDES stormwater permit for construction activity (NCG010000) to Stormwater Inspections throughout the project.
3. Schedule a pre-construction conference with NCDEQ Erosion Control Officer and Erosion Control Design Engineer. Contact DEMLR Raleigh Regional Office at least 48 hours prior to commencing the land-disturbing activity at (919) 791-4200.
4. Erosion and Sediment Control (E&SC) permit, approved plans, and Certificate of Coverage (COC) must be obtained before any logging, clearing or grubbing, or other types of demolition can occur.
5. Per NPDES requirements, a rain gauge, self-inspections records, permit, Certificate of Coverage, and E&SC Plan are required to be maintained on-site and accessible during inspection. It is recommended that these items be placed in a permits box at the beginning or entrance of project.
6. Construction activities that have an E&SC Plan approved on or after April 1, 2019 are required to fill out and submit an electronic Notice of Intent (e-NOI) form. All construction activities are required to follow the new NCG01 permit regardless of when plans were approved.
7. The contractor shall conduct self-inspections of the erosion and sediment control measures and complete the following combined self-inspection form found on the DEMLR website:
[DEMLR Monitoring Form \(nc.gov\)](#). Twelve months of complete inspection forms shall be kept on-site and available for inspection at all times. It is recommended a copy be kept in a permits box.
8. Self-inspections for erosion and sedimentation control measures are to be performed at least once every seven calendar days and within 24 hours of every rain event of greater than 1 inch. Any needed repairs shall be made immediately to maintain measures as details on this plan. A rain gauge shall be installed at the project site for monitoring.
9. Install all temporary erosion and sediment control measures including silt fence, tree protection, inlet protection, and skimmer basins. Limit clearing and land disturbing activity to the area necessary to install the permitted measures.
10. Cover basin slopes with a suitable rolled erosion control product (RECP) after seeding. Any bare soil between the toe of the basin slopes and perimeter E&SC measures will be seeded, mulched, and tacked.
11. Begin clearing and grubbing.
12. Cover any bare areas resulting from construction activity with straw mulch and anchor with asphalt emulsion by the end of each workday.
13. Increase maintenance frequency where approved measures fail to prevent accelerated erosion, off-site sedimentation, or repetitive non-compliance issues.
14. During parking lot construction, a concrete washout, as shown on plans, shall be provided for concrete truck and/or equipment washout.
15. Transition erosion control measures to the final grade phase as proposed grading and drainage progresses. This includes the removal of skimmer basin and the construction of bio-retention with skimmer.
16. Maintain all erosion and sediment control measures in good working order. Silt fence, inlet protection and other similar measures must be cleaned out before they are half full. Clogged stone filters must be refreshed or replaced. Silt fence cannot have holes or tears.
17. Stabilize site as areas are brought up to finished grade with vegetation, paving, mulch, matting, etc. Seed and mulch denuded areas per Ground Stabilization.
18. Once the site is completely stabilized, remove temporary erosion control measures and seed out any resulting bare areas.
19. All sediment basins to be dewatered and outfalls stabilized prior to removal of basins and their perimeter erosion control measures. Basins are to be dewatered via floating intake and pumped effluent to be directed to a special stilling basin(s). Special stilling basins must be located on level ground with stone underlayment or new and unused wooden pallets and continuously monitored during operation.
20. When vegetation has become established, call for a final site inspection by the Erosion Control Design Engineer.
21. When the project is complete, the permittee shall contact DEMLR to close out the E&SC Plan. After DEMLR informs the permittee of the project close out, via inspection report, the permittee shall visit deq.nc.gov/NCG01 to submit an electronic Notice of Termination (e-NOT). A \$100 annual general permit fee will be charged until the e-NOT has been filled out.

SLOPES (3:1 to 2:1)

Date	Type	Planting/Acre
Mar 1 – June 1	Sericea Lespedeza (scarified) and	50 lbs.
Mar 1 – Apr 15	ADD Tall Fescue and	120 lbs.
Mar 1 – June 30	ADD Weeping Love grass or	10 lbs.
Mar 1 – June 30	ADD Hulled Common Bermuda grass	25 lbs.
June 1 – Sept 1	***Tall Fescue and	120 lbs.
	***Brown top Millet or	35 lbs.
	***Sorghum-Sudan Hybrids	30 lbs.
Sept 1 – Mar 1	Sericea Lespedeza (unhulled-unscarified) and	70 lbs.
Nov 1 – Mar 1	Tall Fescue	120 lbs.
	ADD Abruzzi Rye	25 lbs.

***Temporary - Reseed according to optimum season for desired permanent vegetation. Do not allow temporary cover to grow over 12 inches in height before mowing, otherwise fescue may be shaded out. A Conservation Engineer or Soil Conservation Service shall be consulted for additional information concerning other alternatives for vegetation of denuded areas. The above vegetation rates are those which do well under local conditions; other seeding rate combinations are possible. Any variation from this list shall be pre-approved by the TOWN.

SEEDBED PREPARATION

1. Chisel compacted areas and spread topsoil 3 inches deep over adverse soil conditions, with stockpiled topsoil. CONTRACTOR shall reserve sufficient topsoil for seedbed preparation.
2. Rip the entire area to 6 inch depth.
3. Remove all loose rock, roots, and other obstructions leaving surface reasonably smooth and uniform.
4. Apply agricultural lime, fertilizer, and super-phosphate uniformly and mix with soil (see below).
5. Continue tillage until a well-pulverized, firm, reasonably uniform seedbed is prepared 4 to 6 inches deep.
6. Seed on a freshly prepared seedbed and cover seed lightly with seeding equipment or cultipack after seeding.
7. Mulch immediately after seeding and anchor mulch.

8. Inspect all seeded areas and make necessary repairs or reseedings with the planting season, if possible. If stand is less than 60% established, the entire area shall be reseeded according to specifications using the original time, fertilizer and seeding rates.
9. Consult and Conservation Inspector on maintenance treatment and fertilization after permanent cover is established.

*Apply: Agricultural Limestone – 2 tons/acre (3 tons/acre in clay soils)
Fertilizer – 1,000 lbs/acre – 10-10-10
Super-phosphate – 500 lb/acre – 20% analysis
Mulch - 2 tons/acre – small grain straw
Anchor – Asphalt Emulsion @ 300 gals/acre

404 Construction Entrances

Gravel construction entrance pads (see detail 400.06) shall be constructed at each point of construction access to the site, including residential lots. The gravel pads shall be maintained in such a manner as to prevent the deposition of mud and debris onto existing public roadways or properties adjacent to the site.

Special Note: It shall be the developer's responsibility to see that the construction entrance pads are properly maintained so that mud is not tracked onto adjacent streets. In the event that the gravel construction entrances are not properly maintained, or are otherwise ineffective, the TOWN may issue a Notice of Violation, Stop Work Order, and/or assess a penalty which shall remain in effect until such time as the pads are restored and replenished and until any resulting mud and debris has been removed from the adjacent streets by the CONTRACTOR.

405 Inlet Protection

In addition to the inlet protection standard details presented herein and to further protect the water quality of receiving streams, filtering inlet protection devices shall be used at all catch basins along roadways that have just received the first lift of asphalt. The devices shall be installed across the grate and throat and must be a product approved by the Town's Environmental Engineering Manager. The filtering inlet protection device will be subject to periodic inspection and must be properly maintained throughout construction.

406 Computations

All computations and assumptions used to formulate an S&E plan shall be reviewed by the Town. S&E measures, structures and devices shall be planned, designed and constructed to control the calculated peak runoff from a 25-year frequency storm. Runoff rates shall be calculated using the USDA Soil Conservation Service Method, the Rational Method or other acceptable calculation procedures. Runoff computations shall be based on rainfall data published by the National Weather Service for this area.

**SECTION 400
SOIL EROSION & SEDIMENTATION CONTROL**

401 General Requirements

402 Construction Sequence and Schedule

403 Seeding & Mulching

404 Construction Entrances

405 Inlet Protection

406 Computations

401 General Requirements

Temporary soil erosion and sedimentation control (S&E) measures shall be provided in accordance with the S&E plan approved by the Town of Apex. After the performance guarantee has been paid and the perimeter silt/tree fence has been inspected by the zoning compliance officer the S&E letter of plan approval will be issued to permit the CONTRACTOR to grade only enough as to install the S&E measures. The contractor/developer must receive a certificate of coverage from the North Carolina Department of Environmental Quality (NCDEQ) prior to installing measures. Once the S&E measures are installed and found to be acceptable with the approved S&E plan, a certificate of compliance will be issued so the CONTRACTOR can continue land disturbing activities on the applicable phase of the site. The S&E plan shall be in accordance with the North Carolina Division of Energy, Mineral and Land Resources (NCDEMLR) Erosion and Sediment Control Planning and Design manual (latest revisions) and the Town of Apex Standard Specifications and Details. The CONTRACTOR/DEVELOPER should also be familiar with the Town of Apex S&E Ordinance. The approved S&E Plan shall be kept on site by the CONTRACTOR at all times while work is being performed. For land disturbing projects equaling 1 acre or more, the NPDES Stormwater Discharge Permit (NCG 010000) issued by the NCDEQ shall be maintained on site and adhered to. The Town Construction Site Waste Management Plan is issued with the letter of plan approval and must be followed for the life of the project.

All logging and grading activities are limited to a maximum of 20 acres at one time. All S&E measures shall be installed prior to clearing operations, and in no case shall an area, where work is completed, remain denuded for more than 14 calendar days. Ground cover shall be established in graded slopes and fills within 14 calendar days for slopes 3:1 or flatter and within 7 calendar days for slopes steeper than 3:1. S&E measures shall be coordinated with all other work on the project to ensure economical, effective, and continuous S&E throughout the construction and post construction period and to minimize siltation of streams, lakes, reservoirs, and other water impoundments, ground surfaces, roadways, or other properties.

Section 400 – Soil Erosion & Sedimentation Control – Page 1 of 4
Effective Date: may 5, 2020

Section 400 – Soil Erosion & Sedimentation Control – Page 3 of 4
Effective Date: may 5, 2020

Minimum design criteria for S&E devices shall be the following:

1. Required Volume – 3600 ft³ per disturbed acre.
2. Required Surface Area – Shall be based on 435.6 ft²/cfs and the peak flow rate from a 25-year, 24-hour storm event (Q₂₅).
3. The outlet structure from a sediment basin shall only withdraw water from the surface.
4. Prior to the issuance of the Certificate of Compliance, the permanent outlet structure for all temporary sediment basins (Future Stormwater Control Structures-SCM's) must be installed with the skimmer attached to the bottom drain.

402 Construction Sequence and Schedule

The PROJECT ENGINEER will include a construction sequence schedule or work schedule that coordinates the timing of the land-disturbing activities and the installation of erosion and sedimentation control measures. See the Town website for a sample construction sequence.

403 Seeding & Mulching

Seeding and mulching shall be carried out immediately behind construction in accordance with the following specifications:

SHOULDERS, SIDE DITCHES, SLOPES (3:1 MAX.)

Date	Type	Planting/Acre
Aug 15 – Nov 1	Tall Fescue	300 lbs.
Nov 1 – Mar 1	Tall Fescue & Abruzzi Rye	300 lbs.
Mar 1 – Apr 15	Tall Fescue	300 lbs.
Apr 15 -June 30	Hulled Common Bermuda grass	25 lbs.
July 15 – Aug 15	Tall Fescue and	35 lbs.
	***Brown top Millet or	
	***Sorghum-Sudan Hybrids	

Section 400 – Soil Erosion & Sedimentation Control – Page 2 of 4
Effective Date: may 5, 2020

Section 400 – Soil Erosion & Sedimentation Control – Page 4 of 4
Effective Date: may 5, 2020

LEGEND - EROSION CONTROL DEVICES

-  CATCH BASIN AND YARD INLET PROTECTION
-  LIMITS OF DISTURBANCE
-  TREE PROTECTION FENCE
-  SILT FENCE
-  EXCELSIOR WATTLE
-  TEMPORARY DIVERSION DITCH
-  PHASE LINE
-  PHASE 1
-  PHASE 1 INTERIM/ PHASE 2
-  PHASE 2
-  PHASE 3

PHASING NOTES:

1. CONTRACTOR TO MAINTAIN A MINIMUM OF 144 SPACES THROUGHOUT EACH CONSTRUCTION PHASE. CONTRACTOR MAY DROP BELOW 144 USEABLE SPACES FOR SHORT PERIODS. ANY DEVIATION BELOW 144 SPACES MUST BE COORDINATED AND APPROVED BY TOWN BEFORE CLOSURE.
2. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PERMITTING FOR TEMPORARY LAYDOWN AREA AND CONTRACTOR PARKING AREA. CONTRACTOR SHALL COORDINATE WITH TOWN FOR AVAILABLE AREAS.
3. PHASE 1 INCLUDES EXPANDING GRAVEL LOCATED IN PHASE 2 APPROXIMATELY 85' TO PROJECT LIMITS. WHEEL STOPS TO BE INCLUDED AT 9' INTERVALS.
4. PHASE 1 INTERIM SHALL ONLY INCLUDE GRADING REQUIRED TO TIE INTO EXISTING CONDITIONS AND ANY REQUIRED UNDERGROUND UTILITIES.
5. PHASE 1 FINAL SHALL BE OPEN FOR USE DURING PHASE 2 CONSTRUCTION.
6. PHASE 3 CLOSURE SHALL BE COORDINATED WITH TOWN STAFF. PHASE 3 CLOSURE MAY OCCUR BEFORE PHASE 2 CONSTRUCTION IS FINALIZED.
7. INFRASTRUCTURE/ UTILITIES THAT CROSS PHASE LINES WILL NEED TO BE COORDINATED WITH TOWN STAFF. TEMPORARY CLOSURES OUTSIDE OF PHASE CONSTRUCTION MAY OCCUR TO ACCOMMODATE UTILITIES.

NOTES:

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- UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN LIEU OF ROCK INLET SEDIMENT TRAPS, TYPE -C AS DIRECTED TO AVOID IMPOUNDMENT OF RUNOFF IN ROADWAY OPEN TO TRAFFIC
- INSTALL GRAVEL CONSTRUCTION ENTRANCE, TEMPORARY DIVERSIONS, SILT FENCING, SEDIMENT BASINS, BYPASS CHANNELS, AND/OR OTHER MEASURES AS SHOWN ON THE APPROVED PLANS. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET CS100



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843-740-7700

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Building Inspections	Planning - Transportation
Water Resources - Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

Revision By Appd. Y1MMDD

02 TRC_2ND SUBMITTAL	-	22.03.11
01 TRC_1ST SUBMITTAL	-	22.02.01

Issued By Appd. Y1MMDD

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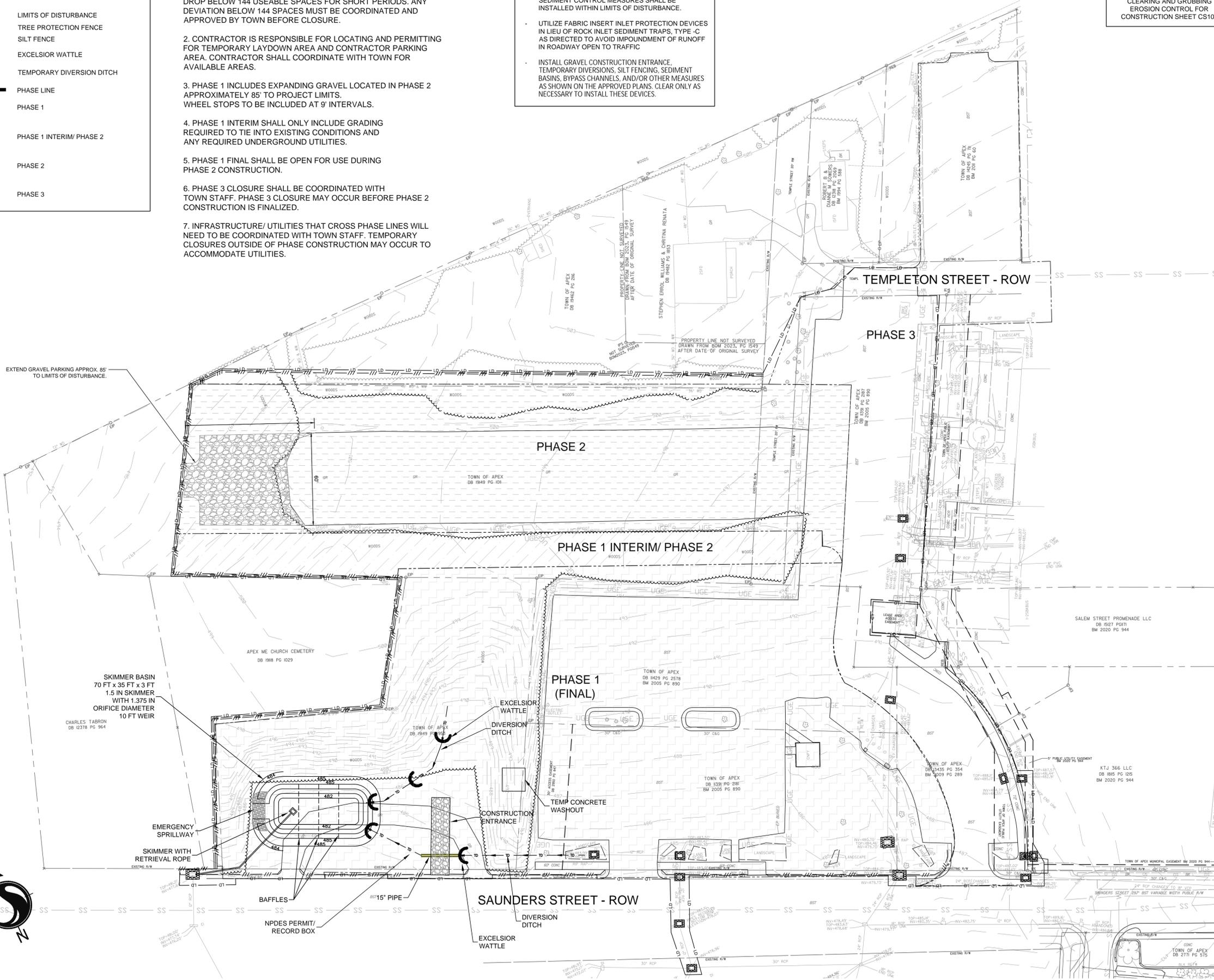
Client/Project
TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

Title
EROSION CONTROL
CLEARING AND GRUBBING

Project No. 178440238	Scale 1" = 30'-0"
Drawing No.	Volume
	Revision

CG112 15 of 45 0



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01 TRC_1ST SUBMITTAL	-	22.02.01

Issued By Appd. Y1MMDD

Permit-Seal

Client/Project

TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

Title

EROSION CONTROL
FINAL GRADING

Project No. 178440238 Scale 1" = 30'-0"

Drawing No. Volume Revision

CG113 16 of 45 0

LEGEND - EROSION CONTROL DEVICES

- CATCH BASIN AND YARD INLET PROTECTION
- LIMITS OF DISTURBANCE
- TREE PROTECTION FENCE
- SILT FENCE
- EXCELSIOR WATTLE
- TEMPORARY DIVERSION DITCH
- PHASE LINE
- PHASE 1
- PHASE 1 INTERIM/ PHASE 2
- PHASE 2
- PHASE 3

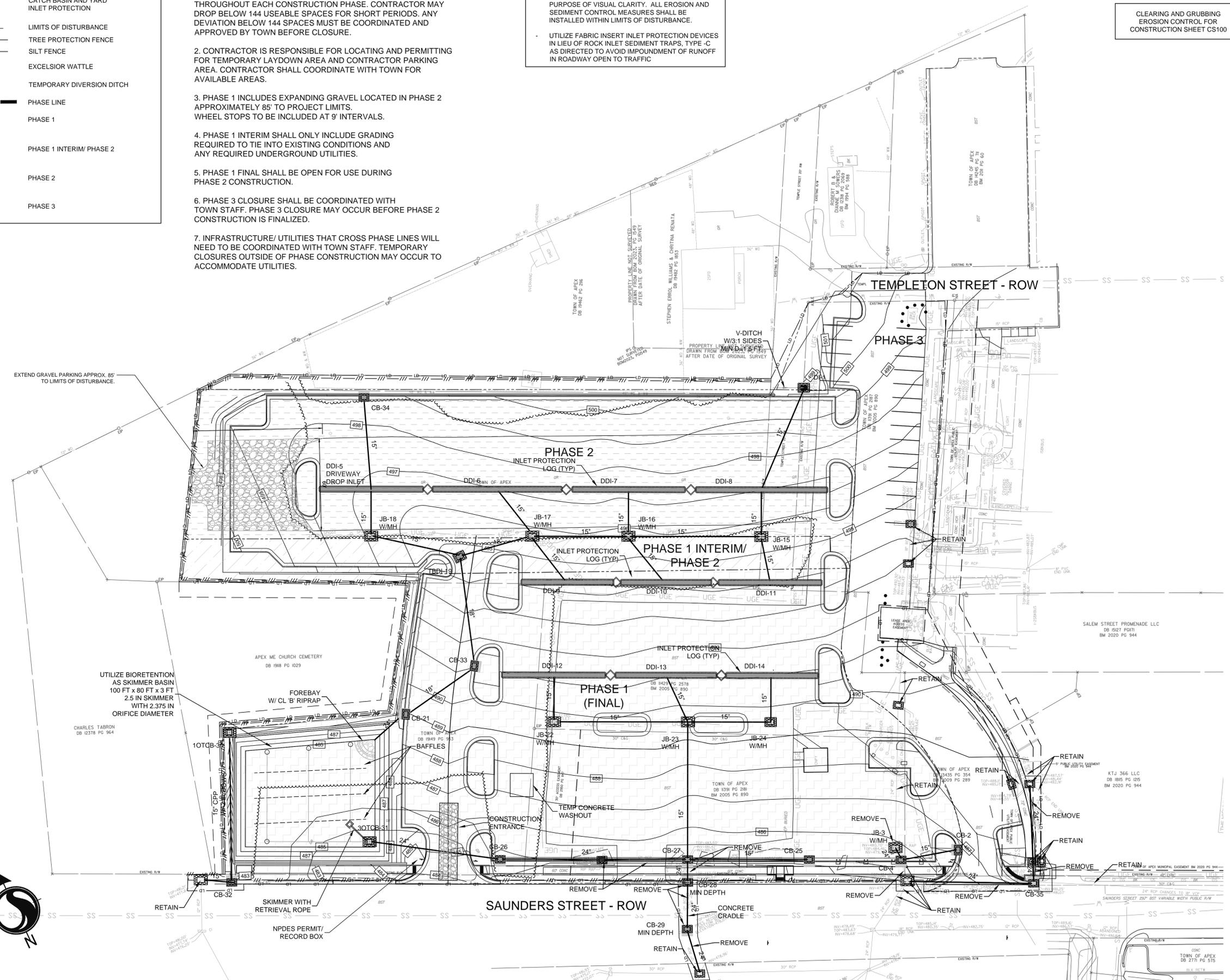
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CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET CS100



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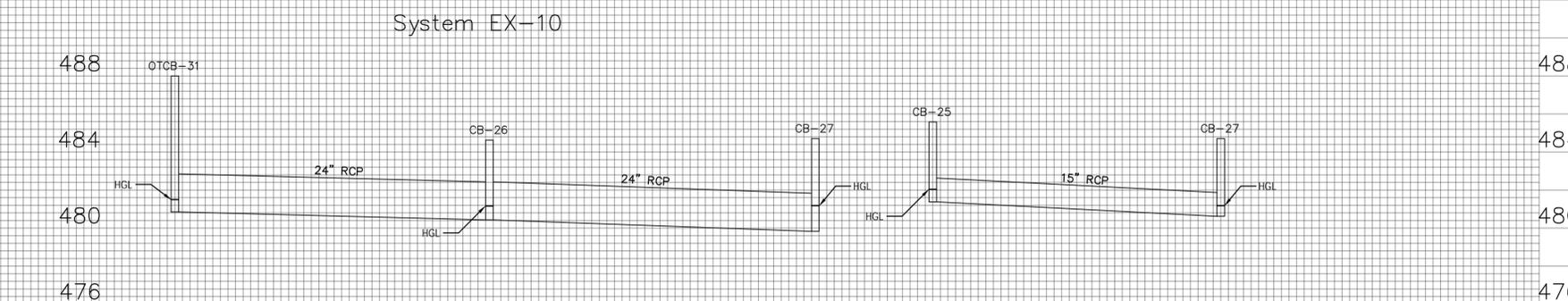
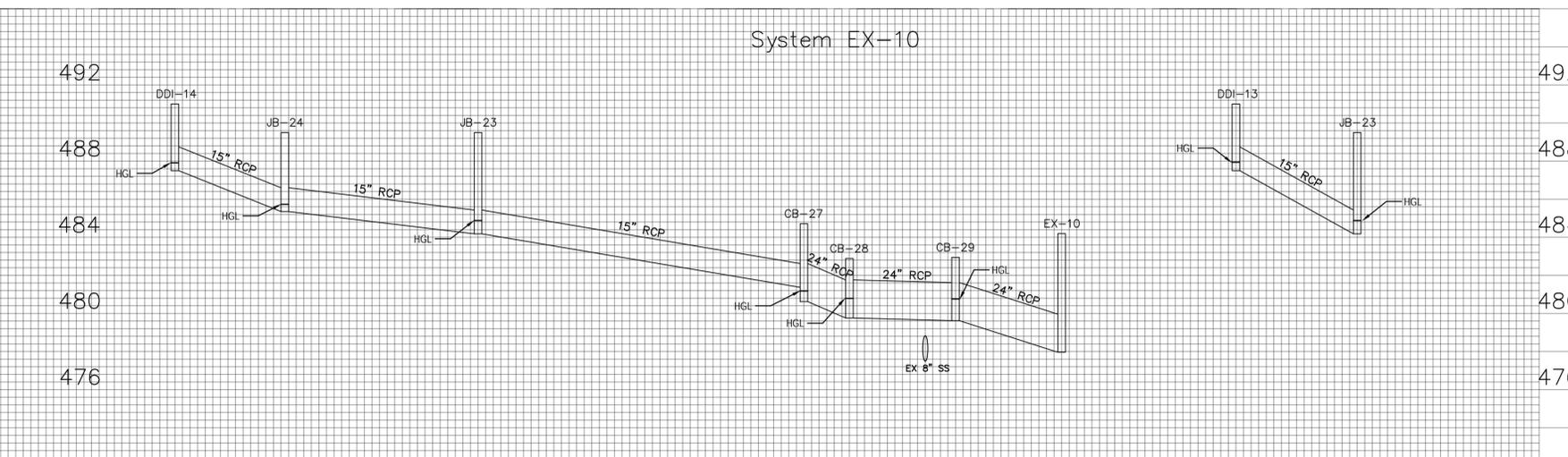
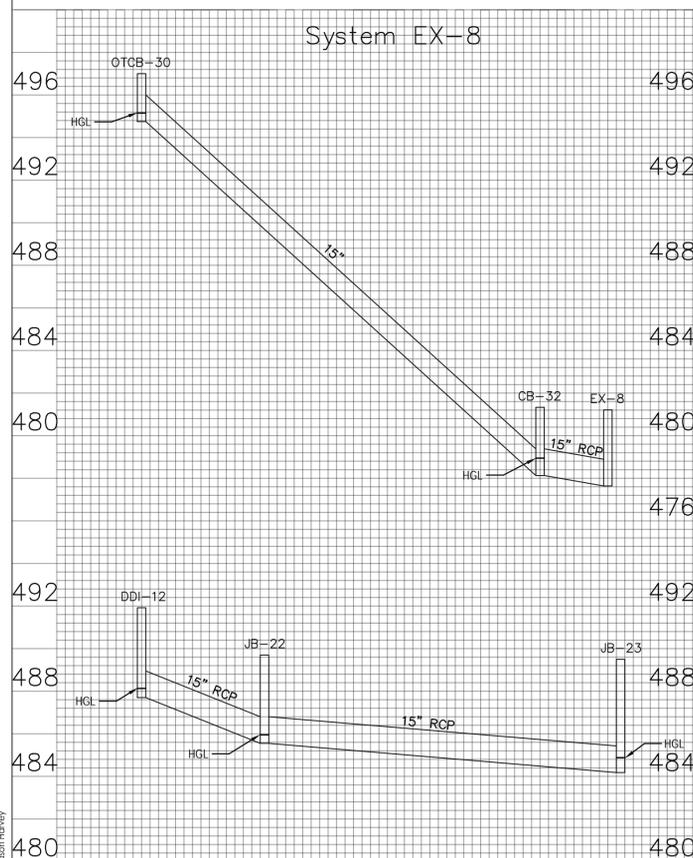
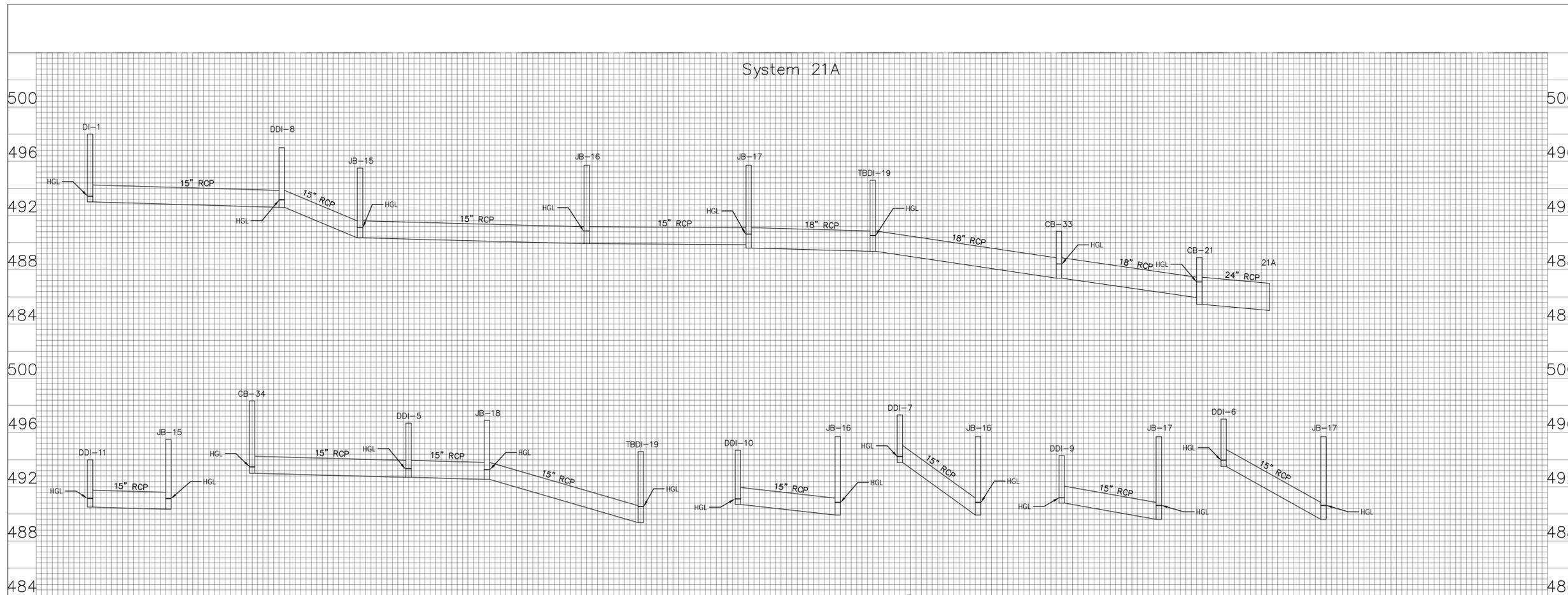


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Water Resources - Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	



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Revision	By	Appd.	YYMMDD
02 TRC_2ND SUBMITTAL	-	-	22.03.11
01 TRC_1ST SUBMITTAL	-	-	22.02.01

Permit-Seal

Client/Project
TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

Title
GRADING PLAN -
HYDRAULIC GRADE LINE

Project No. 178440238	Scale NTS
Drawing No.	Volume
	Revision

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Issued _____ By _____ Appd. YY.MM.DD

Permit-Seal _____

Client/Project

TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

Title

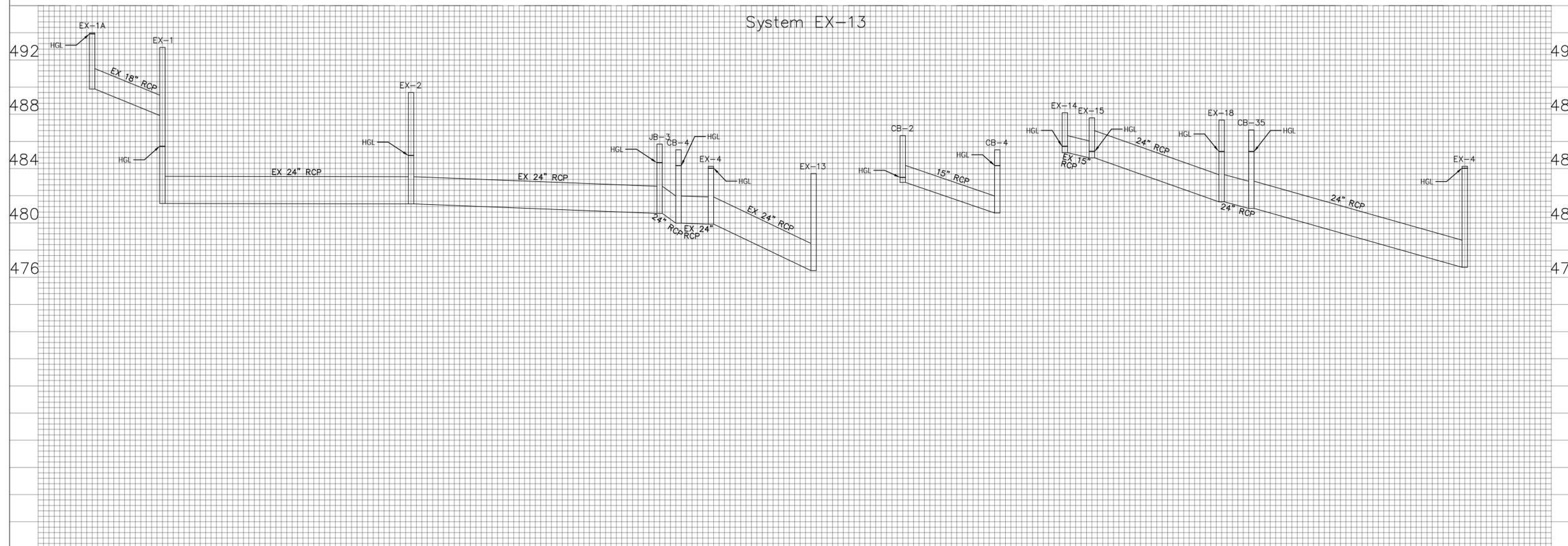
GRADING PLAN -
HYDRAULIC GRADE LINE

Project No. 178440238 Scale NTS

Drawing No. _____ Volume _____ Revision _____

CG211 18 of 45 0

System EX-13





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Building Inspections	Planning - Transportation
Water Resources - Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
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Revision By Appd. Y1MM.DD

02 TRC_2ND_SUBMITAL	-	-	22.03.11
01 TRC_1ST_SUBMITAL	-	-	22.02.01

Issued By Appd. Y1MM.DD

Permit-Seal

Client/Project

TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

Title
EROSION CONTROL
DETAILS

Project No. 178440238 Scale NTS

Drawing No. Volume Revision

CG501 20 of 45 0

MAINTENANCE NOTES:

- REMOVE SEDIMENT WHEN AT $\frac{1}{2}$ HEIGHT OF STONE AND CLEAR HARDWARE OF DEBRIS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS, TAKING CARE NOT TO DAMAGE OR UNDERCUT HARDWARE DURING SEDIMENT REMOVAL.
- REPLACE STONE AND HARDWARE AS NEEDED.

STANDARD METAL POSTS 2" IN GROUND

GALVANIZED HARDWARE WIRE EXTENDS TO TOP OF BOX

#57 WASHED STONE PLACED TO A HEIGHT OF 12"-18" MIN. ABOVE TOP OF BOX.

TOWN OF APEX STANDARDS	CATCH BASIN & YARD INLET PROTECTION	STD. NO. 400.04
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 1

GENERAL NOTES:

- INSTALL SILT FENCE OR TREE PROTECTION FENCE TO ENSURE CONSTRUCTION ENTRANCE IS USED.
- IF CONSTRUCTION ENTRANCE DOES NOT REMOVE MUD FROM TIRES EFFECTIVELY, THE TIRES OF THE VEHICLE MUST BE WASHED BEFORE ENTERING PUBLIC ROAD (SEE DETAIL 400.06 SHEET 2 OF 2).
- IF A PROJECT CONTINUES TO DEPOSIT MUD AND DEBRIS ONTO THE PUBLIC ROAD, THE TOWN WILL CLEAN THE AREA AND INVOICE THE FINANCIALLY RESPONSIBLE PARTY.

MAINTENANCE NOTES:

- CONSTRUCTION ENTRANCE SHALL BE MAINTAINED ROUTINELY TO AVOID SEDIMENT LEAVING PROJECT.
- SEDIMENT ENTERING PAVED ROADWAYS FROM PROJECT SHALL BE REMOVED IMMEDIATELY.

ENTRANCE TYPE	L	W	STONE SIZE
GENERAL	50'	25'	2"-3"
RESIDENTIAL*	25'	12'	#57

* INDIVIDUAL SINGLE FAMILY

TOWN OF APEX STANDARDS	CONSTRUCTION ENTRANCE	STD. NO. 400.06
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 2

MAINTENANCE NOTES:

- CONSTRUCTION ENTRANCE SHALL BE MAINTAINED ROUTINELY TO AVOID SEDIMENT LEAVING PROJECT.
- SEDIMENT ENTERING PAVED ROADWAYS FROM PROJECT SHALL BE REMOVED IMMEDIATELY.

KEEP A BROOM AND SHOVEL CLOSE TO THE RACK TO CLEAN THE STREET

PRESSURIZED WATER SOURCE (CONTINGENT UPON WATER MAIN INSTALLATION)

PROVIDE DRAINAGE AWAY FROM THE WASH RACK TO A SEDIMENT-TRAPPING DEVICE

EXISTING PUBLIC ROAD OR OTHER OFF-SITE PAVEMENT

20' MINIMUM

12' MINIMUM

WASH RACK

EXAMPLE ACCEPTABLE WASH RACK (OTHER APPROVED METHODS MAY BE UTILIZED)

ONE SECTION OF REINFORCED CONCRETE CATTLEGUARD

3" WASHED STONE UNDER SLATS TO DRAIN WATER AND SEDIMENT AWAY FROM THE RACK

FOUNDATION OF 8" COMPACTED CRUSH AND RUN STONE

GEOTEXTILE FABRIC

SECTION 'A-A'

IT IS ADVISABLE TO PROVIDE A SEPARATE ENTRANCE TO LIMIT TRAFFIC ACROSS THE RACK AND REDUCE WEAR AND MAINTENANCE

THE LOCATION MUST SLOPE AWAY FROM THE STREET OR STEPS MUST BE TAKEN (GRADING, DIVERSIONS, ETC.) TO PREVENT RUNOFF FLOWING INTO THE STREET

TOWN OF APEX STANDARDS	CONSTRUCTION ENTRANCE	STD. NO. 400.06
EFFECTIVE: JUNE 11, 2024		SHEET 2 OF 2

MAINTENANCE NOTES:

- INSPECT DIVERSION DITCH WEEKLY AND AFTER RUNOFF-PRODUCING EVENTS FOR EROSION AND GRASS ESTABLISHMENT. REPAIR EROSION, REMOVE SEDIMENT, AND RESTABILIZE DITCH AS NEEDED TO MAINTAIN THE DESIGNED CARRYING CAPACITY.
- CHECK DAMS, WATTLES, OR OTHER APPROVED MEASURE MUST BE INSTALLED WITHIN DITCH, AND MAINTAINED AS NEEDED.

2' MIN.

2' MIN.

18"

2:1 SLOPE (MAX)

CROSS SECTION

GENERAL NOTE: STABILIZE DIVERSION DITCH WITH TEMPORARY SEEDING AND EROSION CONTROL NETTING.

UPSLOPE TOE

POSITIVE GRADE 1.0% MAX.

2' MIN.

SIDE SLOPES 2:1 (MAX)

PLAN VIEW

TOWN OF APEX STANDARDS	DIVERSION DITCH	STD. NO. 400.07
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 1



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Building Inspections	Planning - Transportation
Water Resources - Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

DESIGN INFORMATION TO BE PROVIDED BY THE ENGINEER ON THE CONSTRUCTION DRAWINGS		
	DIMENSIONS	ELEV.
EMERGENCY SPILLWAY	N/A	N/A
TOP OF DAM WIDTH	2'	488.0'
ANTI-SEEP COLLAR	N/A	N/A
RIP RAP DISSIPATOR PAD	N/A	N/A
TOP OF RISER	4'x4'	488.0'
OUTLET PIPE INVERT IN	24" RCP	480.85'
OUTLET PIPE INVERT OUT	24" RCP	480.43'
ANTI-FLOATATION DEVICE	N/A	N/A
SKIMMER SIZE	2.5"	
ORIFICE SIZE	2.375"	

GENERAL NOTES:

- SEDIMENT STORAGE: 3,600 CF/DISTURBED ACRE
- SURFACE AREA : 435 SF/CFS FOR THE Q25
- INSTALL SEDIMENT CLEANOUT ELEVATION STAKES.
- BAFFLES SHALL INCLUDE 700 G/SM COIR EROSION BLANKET. WOOD POSTS ARE NOT ACCEPTABLE.
- FLOW ENTERING THE BASIN MUST BE DIRECTED TO AVOID EROSION ALONG THE SLOPE AND SCOUR IN THE BASIN. APPROPRIATELY SIZED SLOPE DRAINS, PER STD. DETAIL 400.17, ARE RECOMMENDED.
- THE PERMANENT SCM RISER STRUCTURE AND OUTLET PIPE WITH ANTI-SEEP COLLAR MUST BE INSTALLED DURING THE INITIAL SEDIMENT BASIN CONSTRUCTION. TEMPORARILY MODIFY PERMANENT RISER STRUCTURE AS NEEDED TO ATTAIN DESIGN SEDIMENT VOLUME AND DEPTH.
- EARTH DAM SHALL BE STABILIZED WITH VEGETATION ACCORDING TO TOWN SPECIFICATIONS.

TOWN OF APEX STANDARDS	RISER BARREL SEDIMENT BASIN	STD. NO. 400.12
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 2

MAINTENANCE NOTES:

- INSPECT SEDIMENT BASINS AND EMPTY SKIMMER OF ALL DEBRIS AFTER EACH PERIOD OF RUNOFF-PRODUCING RAINFALL. REMOVE SEDIMENT AND RESTORE BASIN TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE BASIN. PLACE THE SEDIMENT THAT HAS BEEN REMOVED IN A DESIGNATED DISPOSAL AREA. REPAIR AND/OR REPLACE BAFFLES.
- CHECK THE STRUCTURE FOR DAMAGE FROM EROSION OR PIPING. PERIODICALLY CHECK THE DEPTH OF THE SPILLWAY TO ENSURE IT IS A MINIMUM OF 1.0 FOOT BELOW THE LOW POINT OF THE EMBANKMENT. IMMEDIATELY FILL ANY SETTLEMENT OF THE EMBANKMENT TO SLIGHTLY ABOVE DESIGN GRADE. ANY RIP RAP DISPLACED FROM THE SPILLWAY MUST BE REPLACED IMMEDIATELY.
- FILTER BAG REQUIRED WHEN DEWATERING BASIN PER STD. DETAIL 400.22.

TOWN OF APEX STANDARDS	RISER BARREL SEDIMENT BASIN	STD. NO. 400.12
EFFECTIVE: JUNE 11, 2024		SHEET 2 OF 2

DESIGN INFORMATION TO BE PROVIDED BY THE ENGINEER ON THE CONSTRUCTION DRAWINGS		
	DIMENSIONS	ELEV.
TOP OF DAM ELEVATION	485'	
BASIN BOTTOM ELEVATION	482'	
BASIN BOTTOM LENGTH	52'	
BASIN BOTTOM WIDTH	17'	
SKIMMER SIZE	1.5"	
ORIFICE SIZE	1.375"	

TOWN OF APEX STANDARDS	TEMPORARY SKIMMER SEDIMENT BASIN	STD. NO. 400.13
EFFECTIVE: JANUARY 20, 2015		SHEET 1 OF 2

NOTES:

- USE FOR DRAINAGE AREAS NOT EXCEEDING 10 ACRES.
- EARTH BERM SHALL BE STABILIZED WITH VEGETATION ACCORDING TO TOWN SPECIFICATIONS.
- INSPECT TEMPORARY SEDIMENT BASINS AND EMPTY SKIMMER OF ALL DEBRIS AFTER EACH PERIOD OF SIGNIFICANT RAINFALL. REMOVE SEDIMENT AND RESTORE BASIN TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE BASIN. PLACE THE SEDIMENT THAT HAS BEEN REMOVED IN A DESIGNATED DISPOSAL AREA. REPAIR AND/OR REPLACE BAFFLES.
- CHECK THE STRUCTURE FOR DAMAGE FROM EROSION OR PIPING. PERIODICALLY CHECK THE DEPTH OF THE SPILLWAY TO ENSURE IT IS A MINIMUM OF 1.0 FOOT BELOW THE LOW POINT OF THE EMBANKMENT. IMMEDIATELY FILL ANY SETTLEMENT OF THE EMBANKMENT TO SLIGHTLY ABOVE DESIGN GRADE. ANY RIP RAP DISPLACED FROM THE SPILLWAY MUST BE REPLACED IMMEDIATELY.
- STABILIZE THE EMBANKMENT AND ALL DISTURBED AREAS ABOVE THE SEDIMENT POOL AND DOWNSTREAM FROM THE BASIN IMMEDIATELY AFTER CONSTRUCTION WITH SEEDING.
- FLOW ENTERING THE BASIN MUST BE DIRECTED TO AVOID EROSION ALONG THE SLOPE AND SCOUR IN THE BASIN. APPROPRIATELY SIZED SLOPE DRAINS, PER THE STANDARD DETAIL, ARE RECOMMENDED.
- SEDIMENT STORAGE: 3,600 CF/DISTURBED ACRE
- SURFACE AREA BASED ON: Q25
- INSTALL SEDIMENT CLEANOUT ELEVATION STAKES.
- BAFFLES SHALL INCLUDE 700 G/SM COIR EROSION BLANKET.

TOWN OF APEX STANDARDS	TEMPORARY SKIMMER SEDIMENT BASIN	STD. NO. 400.13
EFFECTIVE: JANUARY 20, 2015		SHEET 2 OF 2

Revision By Appd. Y1MM.DD

02 TRC_2ND_SUBMITTAL	-	-	22.03.11
01 TRC_1ST_SUBMITTAL	-	-	22.02.01

Issued By Appd. Y1MM.DD

Permit-Seal

Client/Project

TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

Title

EROSION CONTROL
DETAILS

Project No. Scale

178440238 NTS

Drawing No. Volume Revision

CG502 21 of 45 0



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Client/Project

TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

Title

STORM DRAINAGE
DETAILS

Project No.	Scale
178440238	NTS

Drawing No.	Volume	Revision

NOTES:

- NO CONCRETE CRADLE REQUIRED FOR SEPARATION GREATER THAN 18"
- ALL PIPE BELLS SHALL BE LOCATED OUTSIDE OF CONCRETE CRADLE.

PROPOSED PIPELINE OVER EXISTING PIPE **PROPOSED PIPELINE UNDER EXISTING PIPE**

TOWN OF APEX STANDARDS **CONCRETE CRADLE** **STD. NO. 450.09**
EFFECTIVE: MARCH 23, 2021 SHEET 1 OF 1

TOWN OF APEX STANDARDS **YARD INLET W/ CONCRETE SLAB** **STD. NO. 500.01**
EFFECTIVE: DECEMBER 18, 2012 SHEET 1 OF 1

TOWN OF APEX STANDARDS **YARD INLET W/ GRATE & FRAME** **STD. NO. 500.02**
EFFECTIVE: DECEMBER 18, 2012 SHEET 1 OF 1

TOWN OF APEX STANDARDS **GRATE PLACEMENT DETAIL FOR CATCH BASIN** **STD. NO. 500.03**
EFFECTIVE: DECEMBER 3, 2002 SHEET 1 OF 1



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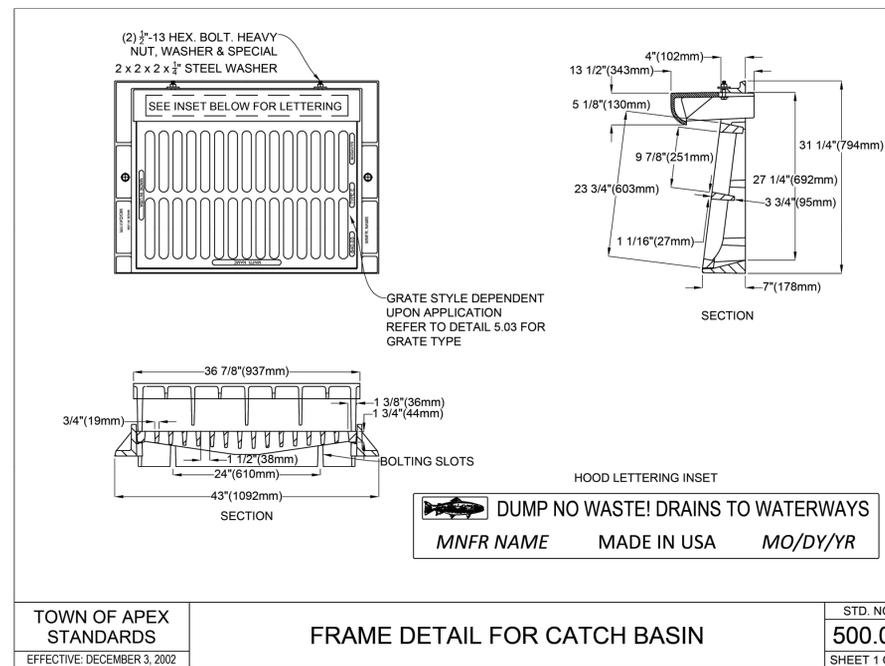
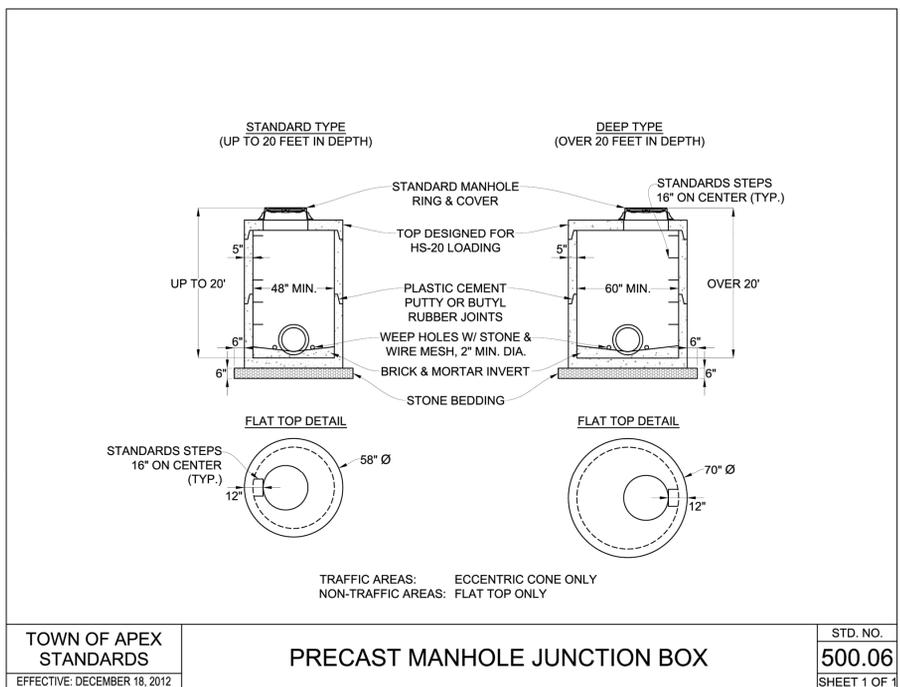
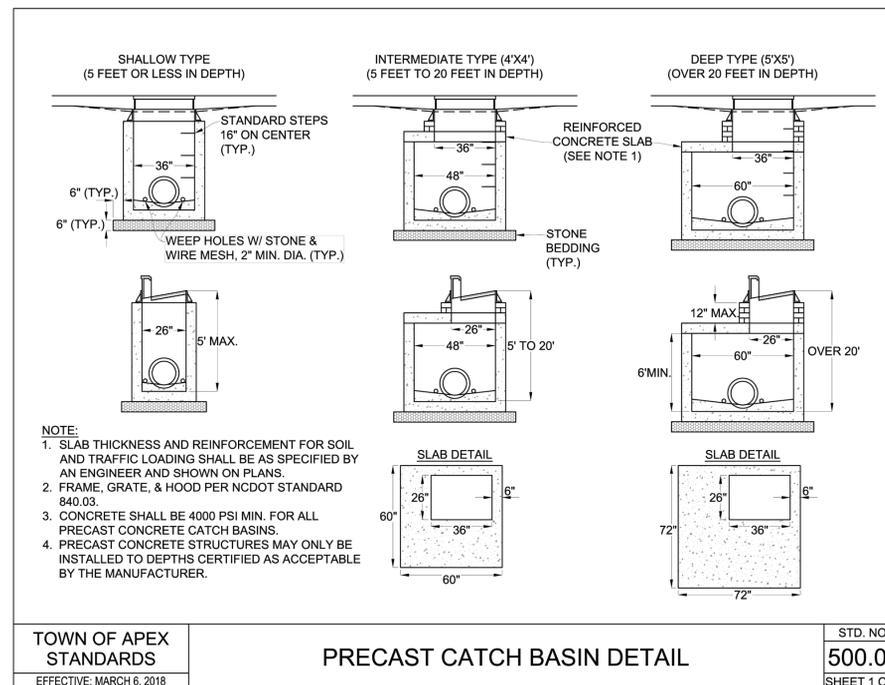
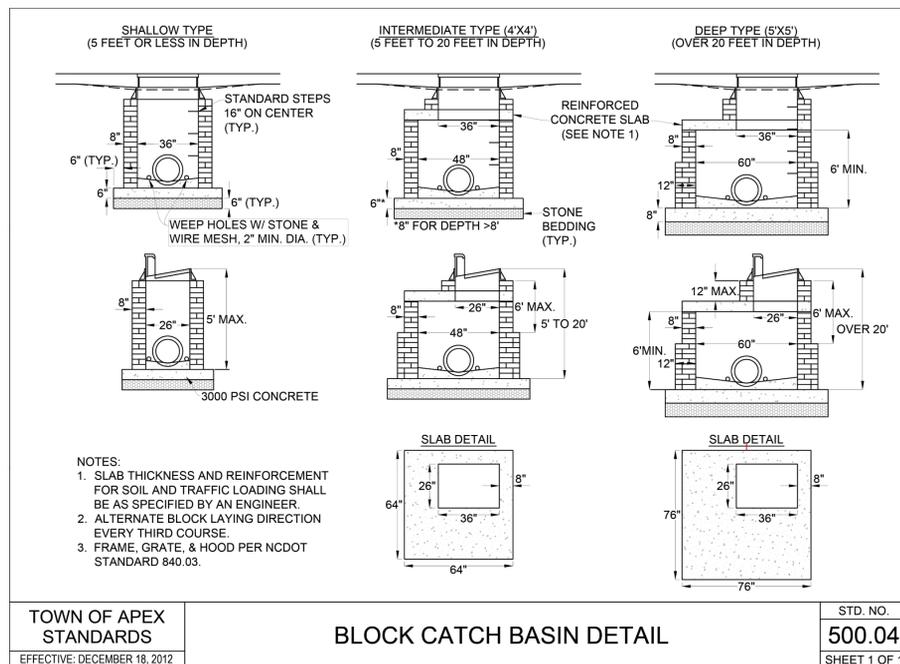
SAUNDERS STREET
PARKING LOT
APEX, NC

Title
STORM DRAINAGE
DETAILS

Project No. 178440238 Scale NTS

Drawing No. Volume Revision

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Client/Project
TOWN OF APEX
SAUNDERS STREET
PARKING LOT
APEX, NC

Title
STORM DRAINAGE
DETAILS

Project No. 178440238 Scale NTS

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REFER TO TABLE FOR COVER REQUIREMENTS

BACKFILL INITIAL LIFT: 12" MAX. NON TRAFFIC AREAS: 12" MAX. LIFTS TRAFFIC AREAS: 6" MAX. LIFTS COMPACTION: 95% MAX. DRY DENSITY (STANDARD PROCTOR)

GEOTEXTILE FABRIC (NON-WOVEN) WRAP STONE AND PIPE

#57 STONE BACKFILL TO SPRINGLINE

CLASS	RCP	
	MIN (ft)	MAX (ft)
III	2	20
IV	1	30

Pipe Diameter (in)	CPP		CSP		CAP	
	MIN (in)	MAX (ft)	MIN (in)	MAX (ft)	MIN (in)	MAX (ft)
15	12	28	12	158	12	98
18	12	28	12	131	12	81
21			12	113	12	69
24	12	26	12	98	12	60
30	12	26	12	79	12	57
36	12	20	12	65	12	47
42	12	20	12	55	12	40
48	12	20	12	48	12	35
54			12	56	15	31
60	24	20	12	50	15	28

NOTES:

- EXCAVATE TO 4 INCHES BELOW THE PROPOSED PIPE ELEVATION.
- PROVIDE 4 INCHES STONE BEDDING AND STONE BACKFILL TO SPRINGLINE.
- WHERE BELL AND SPIGOT PIPE IS USED, PROVIDE RECESSES TO RECEIVE PIPE BELL.
- UNDERCUT UNSUITABLE MATERIAL AS DIRECTED BY THE ENGINEER AND BACKFILL WITH STONE OR OTHER APPROVED MATERIAL.
- BACKFILL MATERIAL SHALL BE APPROVED SUITABLE MATERIAL.
- WHERE NECESSARY, TEMPORARILY DIVERT SURFACE WATER TO MAINTAIN A DRY CONDITION IN THE PIPE FOUNDATION. DIRECT THIS TEMPORARY FLOW INTO SUITABLE EROSION CONTROL DEVICES.

TOWN OF APEX STANDARDS EFFECTIVE: JUNE 5, 2018

STORM DRAIN PIPE BEDDING & BACKFILLING

STD. NO. 500.09 SHEET 1 OF 1

PLAN OF TOP SLAB

PLAN OF BOTTOM SLAB

INSET "A"

SECTION X-X (WITH TOP)

NOTE 1: CONSTRUCT SECTION "B" OF THE PROPOSED WALL 8" THICK. AND SECTION "A" 12" THICK.

NOTE 2: IF PROPOSED STRUCTURE EXCEEDS 12'-0" VERTICAL HEIGHT A DESIGN WILL BE REQUIRED FOR APPROVAL.

NOTE 3: USE SINGLE MAT REINFORCING STEEL; EXCEPT DOUBLE MAT STEEL MAY BE USED IN LIEU OF HOOK BARS IN BASE SLAB.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR TRAFFIC BEARING JUNCTION BOX FOR USE WITH PIPES 42" AND UNDER

SHEET 1 OF 2 840.34

GENERAL NOTES:

ALL MASONRY COMPONENTS OF THIS DRAINAGE DEVICE (EXCLUDING PIPE) ARE TO BE CONSTRUCTED WITH CLASS "B" CONCRETE AND PAID FOR AT THE CONTRACT UNIT PRICE PER EACH FOR MASONRY DRAINAGE STRUCTURES.

* PAY FOR THE GRATE AND FRAME FOR THE DRIVEWAY DROP INLET AT THE CONTRACT UNIT PRICE PER LINEAR FOOT FOR GRATE WITH FRAME, DRIVEWAY DROP INLET. FABRICATE THE GRATE SECTION(S) TO FIT THE OPENING INDICATED IN THE PLANS.

THE CONTRACTOR MAY, AT HIS OPTION, SHORTEN LENGTHS FOR BARS "B" AND LAP THEM TO OBTAIN THE PROPER LENGTH OF BARS. DO NOT OVERLAP BARS LESS THAN 1'-0" LONG.

INCLUDE THE COST OF ALL REINFORCING STEEL IN THE CONTRACT UNIT PRICE PER EACH FOR MASONRY DRAINAGE STRUCTURES.

DESIGN THE GRATES TO MEET HS-20 LOADING.

PROVIDE GRATES WITH A MINIMUM CLEAR WATERWAY OPENING OF 50L² PER 1'-0" LENGTH OF GRATE.

ADDITIONAL PER LINEAR FOOT QUANTITIES MAY BE USED TO ADJUST QUANTITIES FOR LENGTH INCREASE OR DECREASE AS INDICATED BY THE PLANS (SEE CHART BELOW).

BILL OF MATERIAL				
QUANTITIES BASED ON 30' GRATE LENGTH				
BAR	NO.	SIZE	LENGTH	WEIGHT
A	28	#5	3'-11"	114.4
A3	4	#5	5'-8"	23.8
A4	10	#5	5'-0"	52.2
A5	4	#5	3'-10"	16.0
B	7	#5	30'-0"	219.0
B3	6	#5	6'-0"	37.5
B4	5	#5	2'-10"	14.8
C	6	#5	2'-0"	12.5
TOTAL REINF. STEEL LBS.				480.0
CLASS "B" CONC. cu. yds.				3.50
ADDITIONAL CONCRETE PER FT. IN CU. YDS. OVER 3'-6"				0.22
PER LINEAR FOOT QUANTITY ADJUSTMENTS FOR DRAINAGE STRUCTURES DEVIATING FROM THE 30' GRATE LENGTH				
A	1	#5	3'-11"	4.1
B	7	#5	1'-0"	7.3
CLASS "B" CONC. cu. yds.				0.10

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR DRIVEWAY DROP INLET

SHEET 1 OF 1 840.30

GENERAL NOTES:

USE STANDARD OR JUMBO BRICK FOR WALL CONSTRUCTION. SOLID CONCRETE BRICK OR BLOCK ARE OPTIONAL WALL CONSTRUCTION MATERIAL INCLUDE ALL ADJUSTMENTS TO WALLS, SLABS OR REINFORCING MATERIAL IN THE UNIT PRICE BID FOR EACH UNIT.

INSTALL OPTIONAL MANHOLE IN POSITION AS DIRECTED BY THE ENGINEER. CUT OR BEND ALL REBAR CROSSING THIS OPENING TO ALLOW 2" MINIMUM CONCRETE COVERAGE. ENCLOSE THE OPENING WITH 8 "A" BARS TIED TO THE REBAR MAT AND SET SO A MINIMUM OF 3" CONCRETE COVER IS ATTAINED. REFERENCE STD. NO. 840.54 FOR MANHOLE INFORMATION.

PROVIDE JUNCTION BOXES WITH MANHOLES OVER 3'-6" IN DEPTH WITH STEPS PLACED ON 12" CENTERS. REFERENCE STD. NO. 840.66.

SPACE DOWEL "C" BARS AT A MAXIMUM OF 12" CENTERS.

MAXIMUM DEPTH OF THIS UNIT AS SHOWN IS 12".

CONSTRUCT THE JUNCTION BOX IN ACCORDANCE WITH SECTIONS 830, 832, 834 AND 840 OF THE STANDARD SPECIFICATIONS.

BILL OF MATERIAL				
BAR	QTY.	SIZE	LENGTH	WEIGHT
A	8	#5	1'-2"	9.2
B	14	#5	5'-6"	80.3
C	26	#4	1'-6"	26.1
Y	14	#5	6'-11 3/8"	101.5
STEEL TOTAL WEIGHT				217.5
CU. YDS. CLASS "AA" CONC.				2.6
CU. YDS. BRICK/FT. HT. (8")				0.53
CU. YDS. BRICK/FT. HT. (12")				0.84

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ROADWAY STANDARD DRAWING FOR TRAFFIC BEARING JUNCTION BOX FOR USE WITH PIPES 42" AND UNDER

SHEET 2 OF 2 840.34

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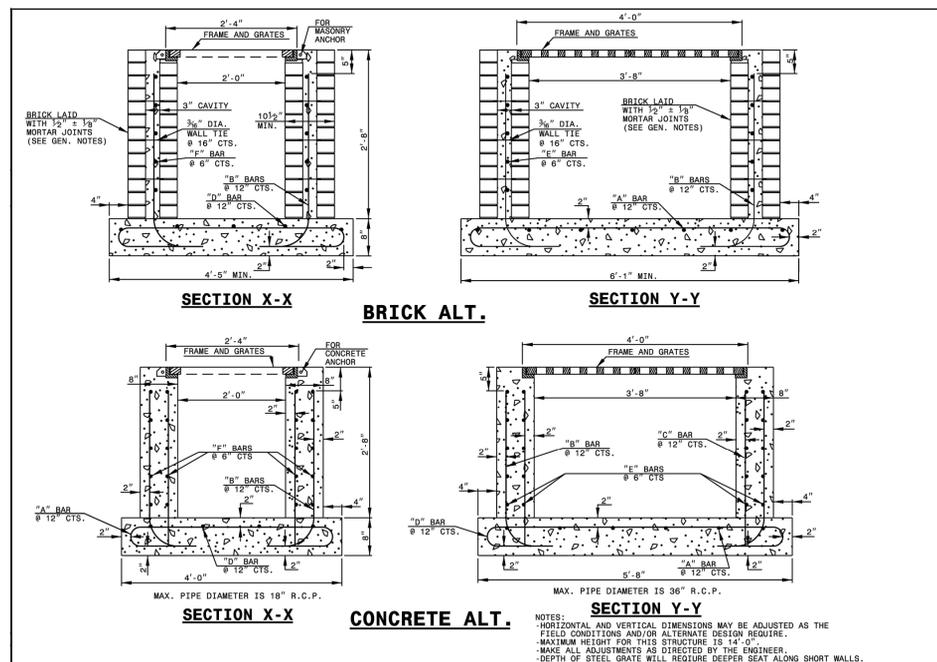
Client/Project
TOWN OF APEX
SAUNDERS STREET PARKING LOT
APEX, NC

Title
STORM DRAINAGE DETAILS

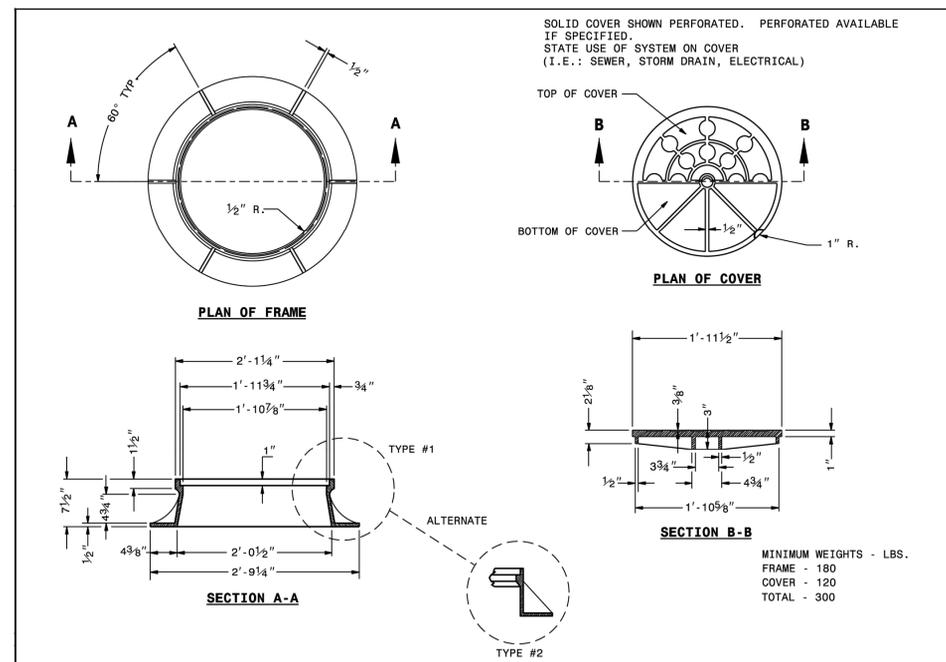
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Drawing No. _____ Volume _____ Revision _____

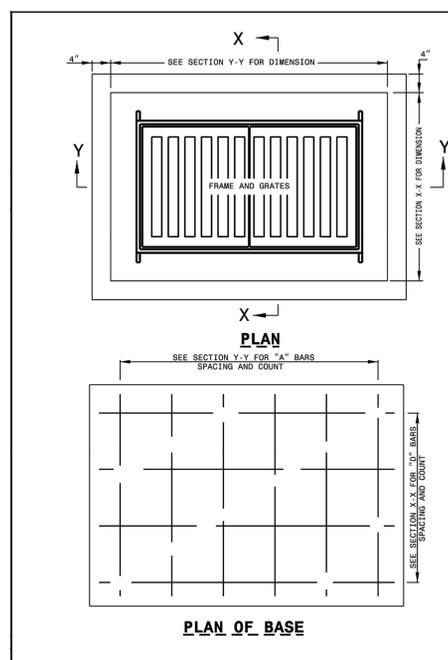
CG513 26 of 45 0



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR TRAFFIC BEARING GRATED DROP INLET FOR CAST IRON DOUBLE FRAME AND GRATES
SHEET 1 OF 2
840.35



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR MANHOLE FRAME AND COVER
SHEET 1 OF 1
840.54



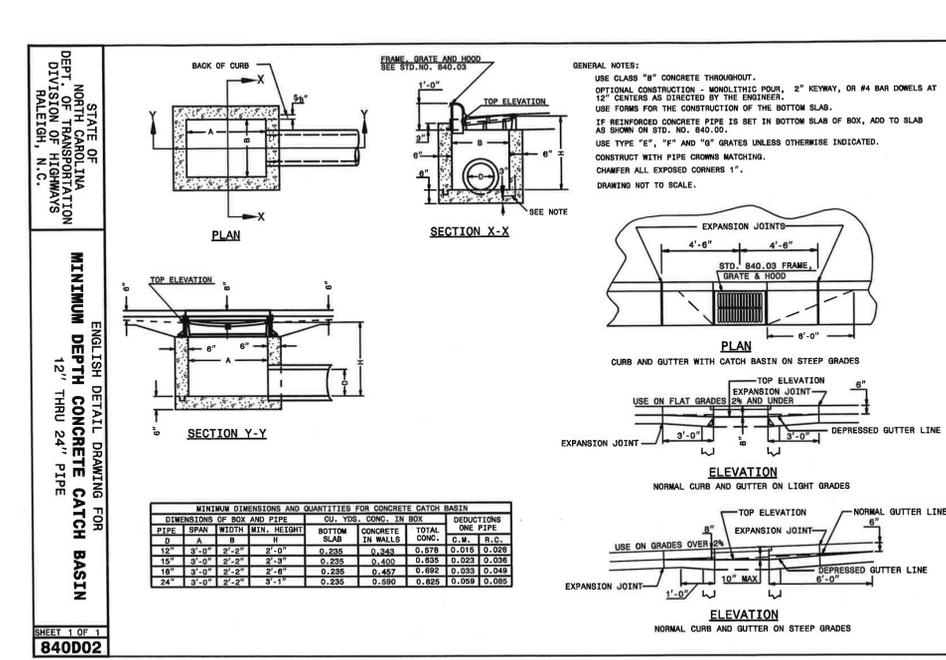
BILL OF MATERIALS

COMMON		CONCRETE ALT.		BRICK ALT.	
BAR	SIZE	LENGTH	QUANTITY	LENGTH	QUANTITY
A	#5	3'-4 1/2"	10	3'-4 1/2"	8
B	#5	3'-4 1/2"	10	3'-4 1/2"	10
C	#5	2'-8"	14	38.0	-0-
D	#5	0'-0 1/2"	4	33.6	0'-3 3/4"
E	#5	3'-0"	20	62.6	3'-0"
F	#5	4'-8"	20	97.3	4'-8"
REINF. STEEL (TOTAL WEIGHT LBS.)		328.6		222.8	
CONCRETE IN BASE CLASS "AA" (CUBIC YARDS)		0.56		0.66	
CONCRETE IN WALLS CLASS "AA" (CUBIC YARDS)		0.92		-0-	
CONCRETE IN WALLS CLASS "B" (CUBIC YARDS)		-0-		0.36	
BRICK IN WALLS (CUBIC YARDS)		-0-		0.81	
CONCRETE TOTAL (CUBIC YARDS)		1.48		1.02	
BRICK & CONCRETE TOTAL (CUBIC YARDS)		1.48		1.83	
CONG. CUBIC YARDS IN WALL/FOOT OF HEIGHT		0.35		0.14	
BRICK CUBIC YARDS IN WALL/FOOT OF HEIGHT		-0-		0.34	
LBS. OF REINF. STEEL IN WALL/FOOT OF HEIGHT		94.9		47.6	

STRAIGHT BARS
BASE BARS
CORNER BARS

GENERAL NOTES:
- USE CLASS "AA" CONCRETE FOR CAST IN PLACE CONCRETE BOX.
- USE CLASS "B" CONCRETE IN THE WALL CAVITY FOR REINFORCED BRICK CONSTRUCTION AND CLASS "AA" FOR THE FOOTING BASE.
- CHAMFER ALL EXPOSED CONCRETE CORNERS 1".
- USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
- IF PIPES ARE SET IN THE BASE FOLLOW CONSTRUCTION PROCEDURES SHOWN BY STD. DWG. 840.00.
- PRECAST UNITS MADE OF CLASS "AA" CONCRETE MAY BE USED IN LIEU OF BRICK MASONRY CONSTRUCTION.
- INCLUDE REINFORCING STEEL COST IN THE UNIT OR LINEAR FOOT BID PRICE FOR "MASONRY DRAINAGE STRUCTURE".
- REFERENCE STD. DWG. 840.25 FOR FRAME ANCHORAGE.
- CONCRETE BRICK, JUMBO BRICK AND 4" SOLID CONCRETE BLOCK WILL BE PERMITTED.
- CONCRETE FOR BRICK BOX REFER TO SECTION 832 OF THE STANDARD SPECIFICATIONS.
- PROVIDE GRATED DROP INLETS OVER 3'-6" DEEP WITH STEPS SPACED 12" ON CENTER AS DIRECTED BY STD. DWG. 840.66.
- FRAME AND GRATES ARE SEPARATE CONTRACT ITEMS.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR TRAFFIC BEARING GRATED DROP INLET FOR CAST IRON DOUBLE FRAME AND GRATES
SHEET 2 OF 2
840.35



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ENGLISH DETAIL DRAWING FOR MINIMUM DEPTH CONCRETE CATCH BASIN 12" THRU 24" PIPE
SHEET 1 OF 1
840D02

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01 TRC_1ST_SUBMITTAL	-	-	22.02.01

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Client/Project
TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

Title
STORM DRAINAGE
DETAILS

Project No.
178440238

Scale
NTS

Drawing No. Volume Revision

CG514 27 of 45 0

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RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH BRICK CATCH BASIN
12" THRU 24" PIPE

PLAN

SECTION X-Y

SECTION Y-Y

GENERAL NOTES:

- MORTAR JOINTS 1/4" TO 1/2" THICK.
- USE CLASS "M" CONCRETE THROUGHOUT.
- USE FORMS FOR CONSTRUCTION OF THE BOTTOM SLAB.
- DEDUCT FOR PIPE(S) FROM TOTAL CU. VOL. OF BRICK MASONRY.
- USE TYPE "12", "18" AND "24" GRATES UNLESS OTHERWISE INDICATED.
- USE BRICK OR CONCRETE BLOCK WHICH COMPLES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.
- IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840-05.
- CONSTRUCT WITH PIPE CHIMES MATCHING.
- CHAMFER ALL EXPOSED CORNERS 1".
- DRAWING NOT TO SCALE.

EXPANSION JOINTS: 4'-6" 4'-6" 8'-0"

STD. 840-05 FRAME, GRATE & WOOD

PLAN

CURB AND GUTTER WITH CATCH BASIN ON STEEP GRADES

EXPANSION JOINT

TOP ELEVATION

EXPANSION JOINT 24" AND UNDER

USE ON FLAT GRADES

DEPRESSED GUTTER LINE

ELEVATION

NORMAL CURB AND GUTTER ON LIGHT GRADES

TOP ELEVATION

EXPANSION JOINT

USE ON GRADES OVER 2%

NORMAL GUTTER LINE

EXPANSION JOINT

1'-0" MAX

DEPRESSED GUTTER LINE

ELEVATION

NORMAL CURB AND GUTTER ON STEEP GRADES

MINIMUM DIMENSIONS AND QUANTITIES FOR BRICK CATCH BASIN									
DIMENSIONS OF BOX AND PIPE				CU. YDS. CONC. IN BOX		BRICK MASONRY		DEDUCTIONS	
PIPE I.D.	SPAN	WIDTH	HEIGHT	BOTTOM	TOTAL	SLAB	CONC.	BRICK	ONE PIPE
D	A	B	H						
12"	3'-0"	2'-2"	2'-0"	0.281	0.281	0.481	0.762	0.200	0.042
15"	3'-0"	2'-2"	2'-3"	0.281	0.281	0.682	0.843	0.031	0.047
18"	3'-0"	2'-2"	2'-6"	0.281	0.281	0.882	1.023	0.044	0.055
24"	3'-0"	2'-2"	3'-1"	0.281	0.281	0.828	1.109	0.078	0.117

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH BRICK CATCH BASIN
12" THRU 24" PIPE



The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

Transportation Engineering	Planning
Building Inspections	Planning - Transportation
Water Resources - Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

Revision By Appd. Y1MMDD

02 TRC_2ND_SUBMITTAL	-	-	22.03.11
01 TRC_1ST_SUBMITTAL	-	-	22.02.01

Issued By Appd. Y1MMDD

Permit-Seal

Client/Project

TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

Title
STORM DRAINAGE
DETAILS

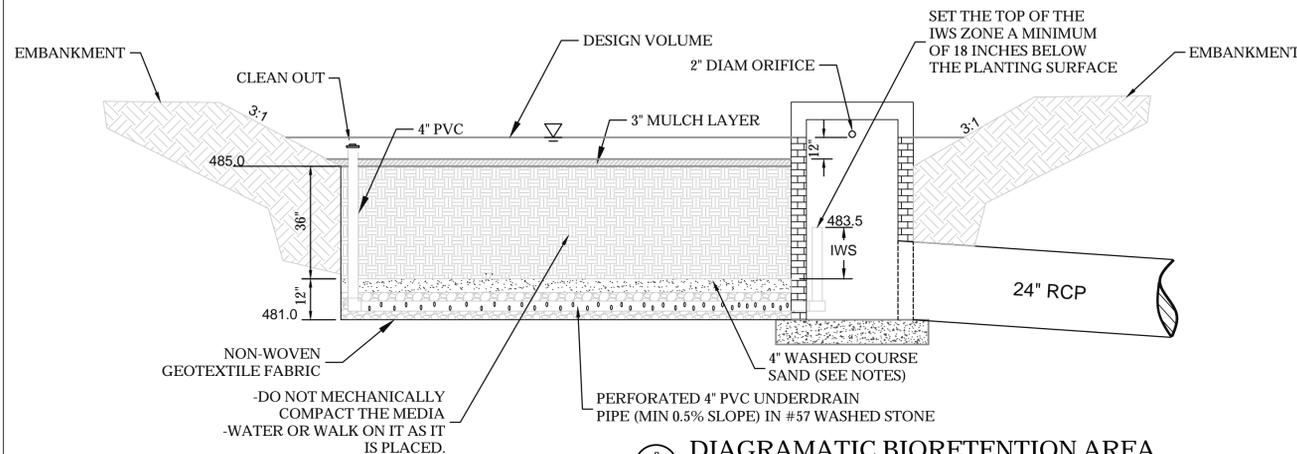
Project No. Scale

178440238 NTS

Drawing No. Volume Revision

CG515 28 of 45 0

PER AWT ENGINEERS AND SOIL SCIENTISTS, THE SHWT-9 BORING (WHICH IS LOCATED WITHIN THE BIO-RETENTION BASIN FOOT PRINT) INDICATED NO PERCHED SHWT WITHIN 120-INCHES (10 FEET) OF THE SOIL SURFACE. BASED ON AVAILABLE INFORMATION, THE BORING STOPPED AT ELEVATION 476 (60-INCHES (5 FEET) BELOW THE LOWEST POINT OF THE BIO-RETENTION BASIN).



DIAGRAMMATIC BIORETENTION AREA

NOTES:

1. THE BIORETENTION CELL MEDIA SHALL NOT BE INSTALLED UNTIL THE CONTRIBUTING DRAINAGE BASIN IS STABILIZED SUCH THAT NO EXCESSIVE CLAYS, SILTS, OR DEBRIS WILL WASH INTO THE BASIN. IF THE MEDIA BECOMES CLOGGED OR CONTAMINATED, THE CONTRACTOR SHALL REMOVE AND REPLACE IT.
2. NO HEAVY MACHINERY SHALL BE PLACED ON THE MEDIA AT ANY TIME ONCE IT HAS BEEN INSTALLED OR DURING INSTALLATION. ALL SOIL PLACEMENT SHALL BE MANUAL TO AVOID COMPACTION.

MEDIA NOTES:

MEDIA MIX

THE MEDIA SHOULD BE COMPOSED OF A HOMOGENOUS MIX OF THE FOLLOWING:
A 75-85% MEDIUM TO COARSE WASHED SAND
B 8-10% FINES (SILT AND CLAY); AND
C 5-10% ORGANIC MATTER (SUCH AS PIN BARK FINES)
SAND FILTER SPECIFICATIONS
TEST METHOD: CLEAN AASHTO-M-6 OR ASTM-C-33 CONCRETE SAND
SIZE: 0.02" TO 0.04"

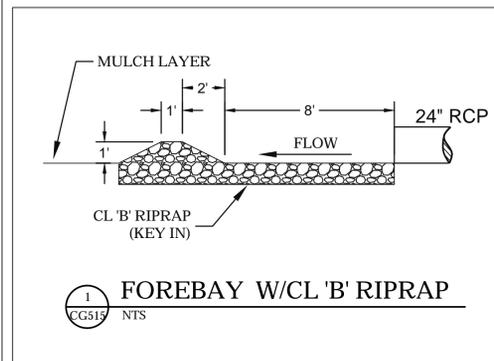
NOTES: SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED.

MEDIA P-INDEX

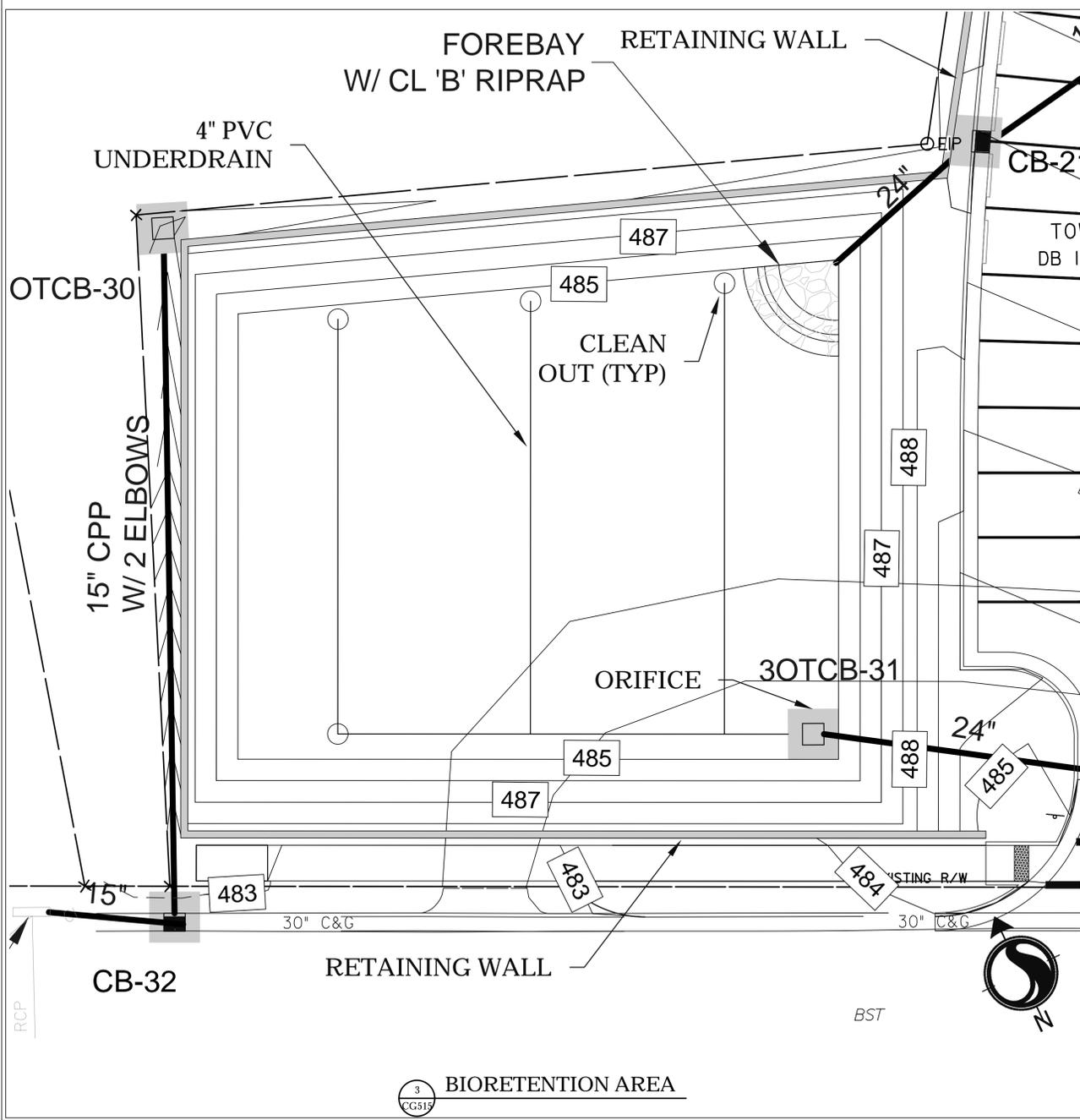
LESS THAN 30 IN NSW WATERS

MEDIA MAINTENANCE

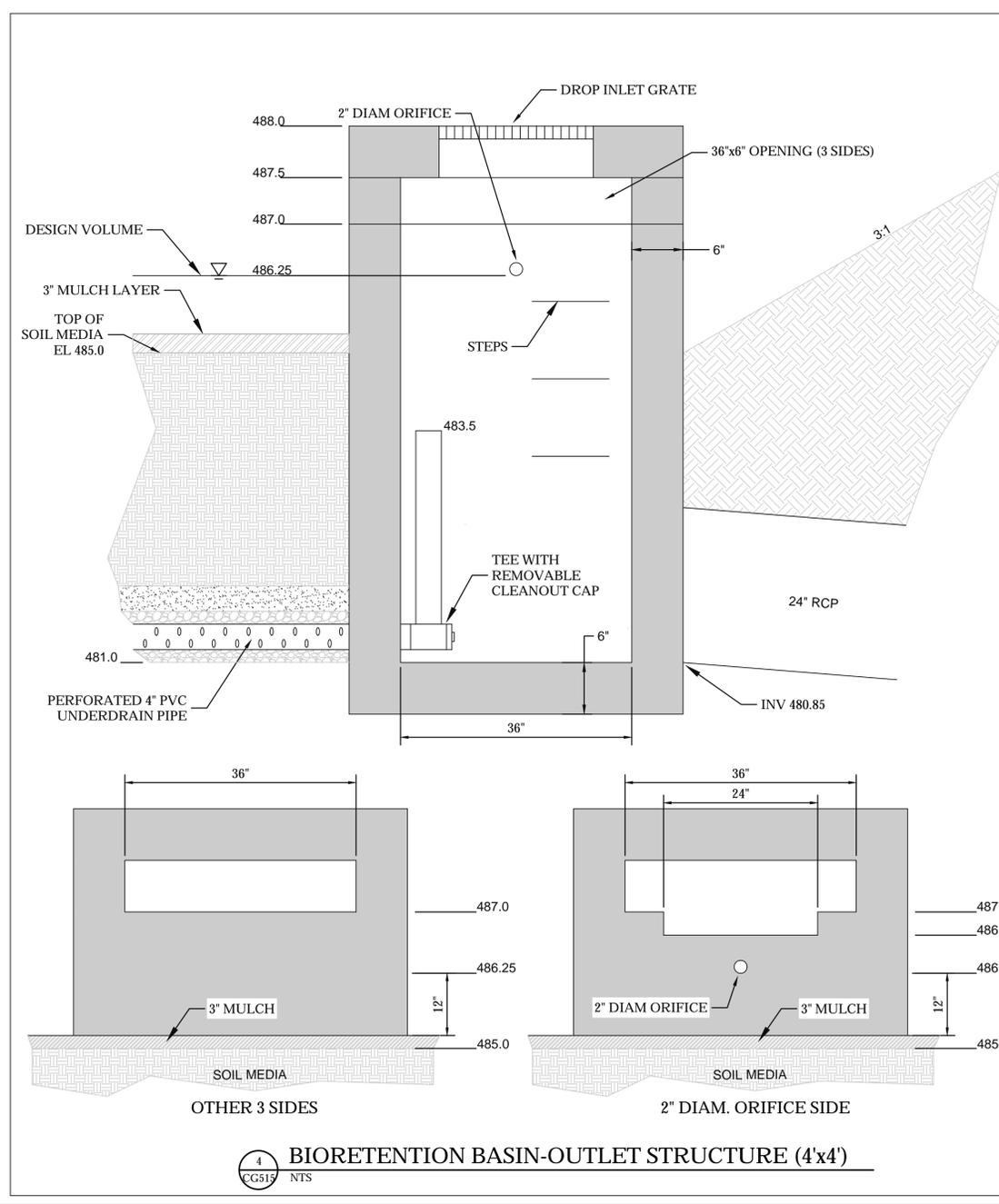
MAINTAIN MEDIA SUCH THAT INFILTRATION RATE IS AT LEAST 1 IN/HR



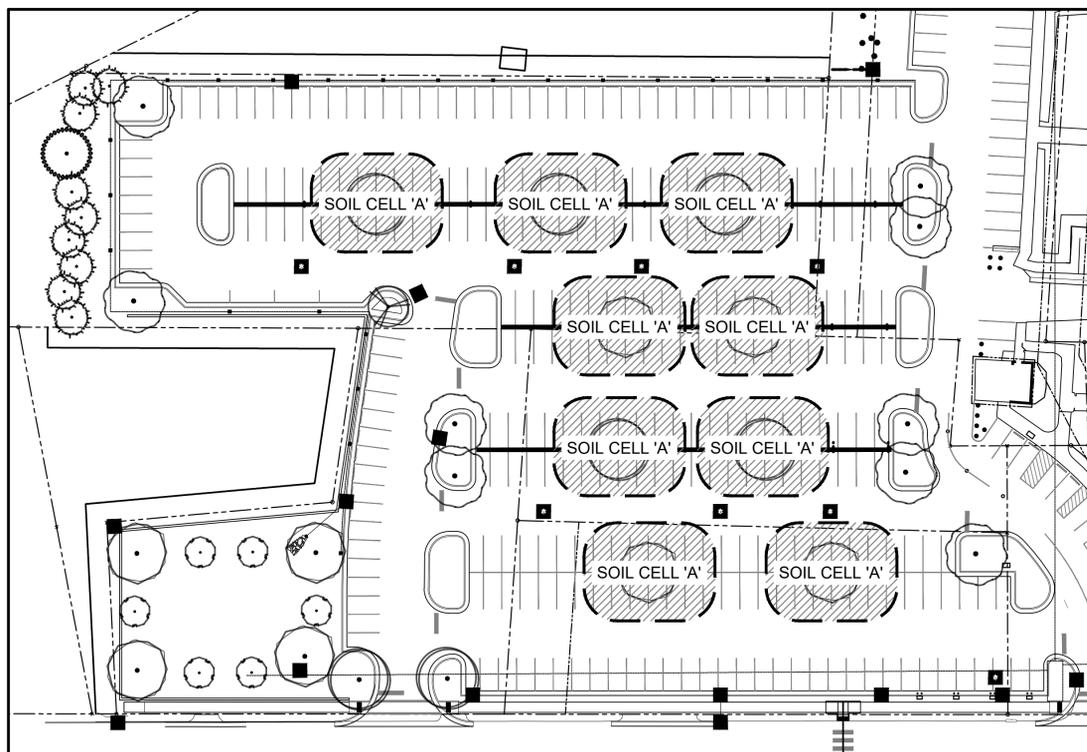
FOREBAY W/CL 'B' RIPRAP



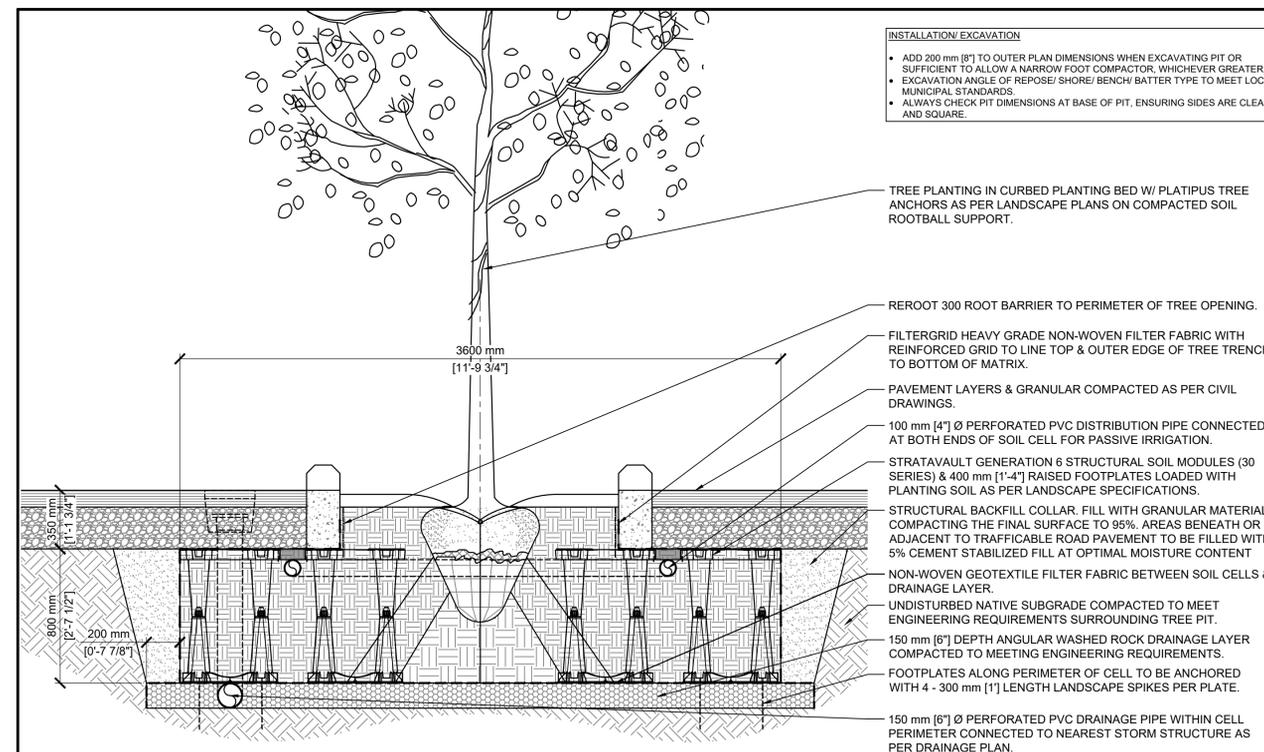
BIORETENTION AREA



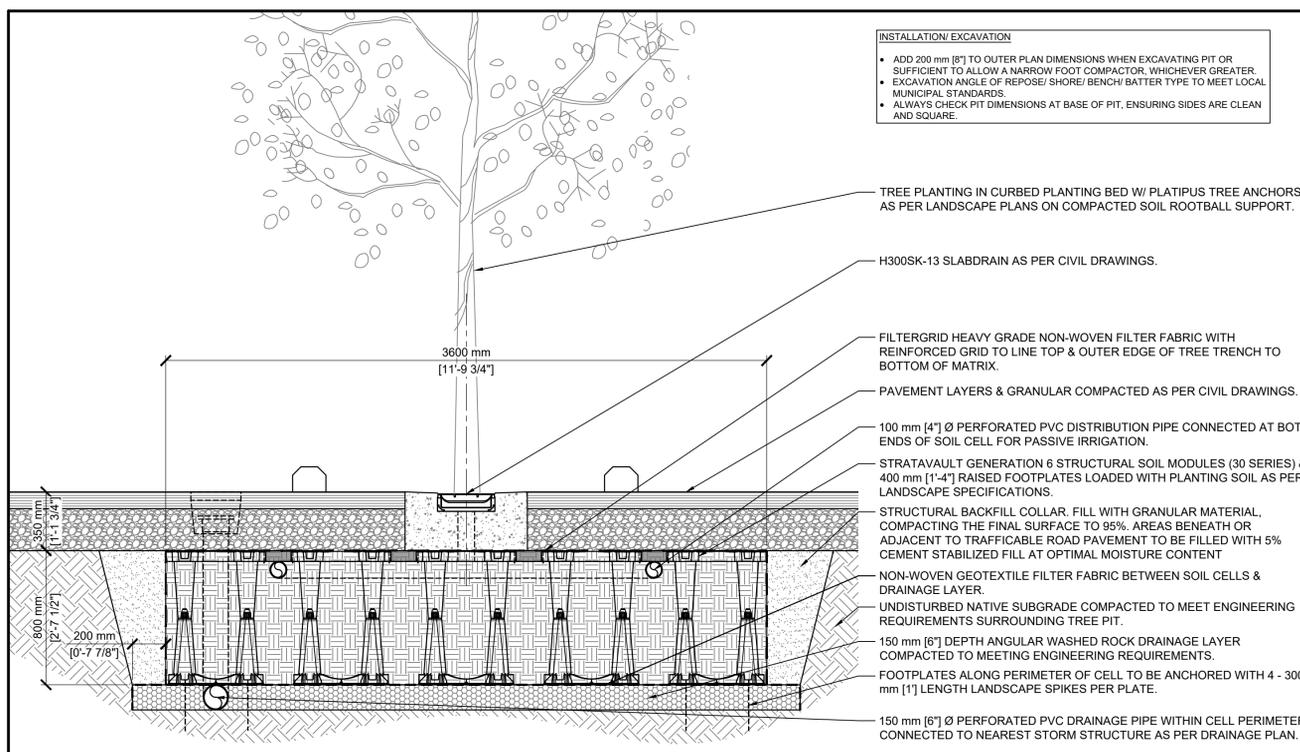
BIORETENTION BASIN-OUTLET STRUCTURE (4'x4')



1 SITE KEYPLAN
Scale: 1:500



2 TYPICAL SOIL CELL SECTION - TREE PLANTING
Scale: 1:20



3 TYPICAL SOIL CELL SECTION - TRENCH DRAIN
Scale: 1:20

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2020/08/08 3:33 PM By: Thom Buckley

ORIGINAL SHEET - ARCHD

INSTALLATION/EXCAVATION

- ADD 200 mm [8"] TO OUTER PLAN DIMENSIONS WHEN EXCAVATING PIT OR SUFFICIENT TO ALLOW A NARROW FOOT COMPACTOR, WHICHEVER GREATER.
- EXCAVATION ANGLE OF REPOSE/ SHORE/ BENCH/ BATTER TYPE TO MEET LOCAL MUNICIPAL STANDARDS.
- ALWAYS CHECK PIT DIMENSIONS AT BASE OF PIT, ENSURING SIDES ARE CLEAN AND SQUARE.

TREE PLANTING IN CURBED PLANTING BED W/ PLATIPUS TREE ANCHORS AS PER LANDSCAPE PLANS ON COMPACTED SOIL ROOTBALL SUPPORT.

REROOT 300 ROOT BARRIER TO PERIMETER OF TREE OPENING.

FILTERGRID HEAVY GRADE NON-WOVEN FILTER FABRIC WITH REINFORCED GRID TO LINE TOP & OUTER EDGE OF TREE TRENCH TO BOTTOM OF MATRIX.

PAVEMENT LAYERS & GRANULAR COMPACTED AS PER CIVIL DRAWINGS.

100 mm [4"] Ø PERFORATED PVC DISTRIBUTION PIPE CONNECTED AT BOTH ENDS OF SOIL CELL FOR PASSIVE IRRIGATION.

STRATAVAULT GENERATION 6 STRUCTURAL SOIL MODULES (30 SERIES) & 400 mm [1'-4"] RAISED FOOTPLATES LOADED WITH PLANTING SOIL AS PER LANDSCAPE SPECIFICATIONS.

STRUCTURAL BACKFILL COLLAR. FILL WITH GRANULAR MATERIAL, COMPACTING THE FINAL SURFACE TO 95%. AREAS BENEATH OR ADJACENT TO TRAFFICABLE ROAD PAVEMENT TO BE FILLED WITH 5% CEMENT STABILIZED FILL AT OPTIMAL MOISTURE CONTENT

NON-WOVEN GEOTEXTILE FILTER FABRIC BETWEEN SOIL CELLS & DRAINAGE LAYER.

UNDISTURBED NATIVE SUBGRADE COMPACTED TO MEET ENGINEERING REQUIREMENTS SURROUNDING TREE PIT.

150 mm [6"] DEPTH ANGULAR WASHED ROCK DRAINAGE LAYER COMPACTED TO MEETING ENGINEERING REQUIREMENTS.

FOOTPLATES ALONG PERIMETER OF CELL TO BE ANCHORED WITH 4 - 300 mm [1"] LENGTH LANDSCAPE SPIKES PER PLATE.

150 mm [6"] Ø PERFORATED PVC DRAINAGE PIPE WITHIN CELL PERIMETER CONNECTED TO NEAREST STORM STRUCTURE AS PER DRAINAGE PLAN.

INSTALLATION/EXCAVATION

- ADD 200 mm [8"] TO OUTER PLAN DIMENSIONS WHEN EXCAVATING PIT OR SUFFICIENT TO ALLOW A NARROW FOOT COMPACTOR, WHICHEVER GREATER.
- EXCAVATION ANGLE OF REPOSE/ SHORE/ BENCH/ BATTER TYPE TO MEET LOCAL MUNICIPAL STANDARDS.
- ALWAYS CHECK PIT DIMENSIONS AT BASE OF PIT, ENSURING SIDES ARE CLEAN AND SQUARE.

TREE PLANTING IN CURBED PLANTING BED W/ PLATIPUS TREE ANCHORS AS PER LANDSCAPE PLANS ON COMPACTED SOIL ROOTBALL SUPPORT.

H300SK-13 SLABDRAIN AS PER CIVIL DRAWINGS.

FILTERGRID HEAVY GRADE NON-WOVEN FILTER FABRIC WITH REINFORCED GRID TO LINE TOP & OUTER EDGE OF TREE TRENCH TO BOTTOM OF MATRIX.

PAVEMENT LAYERS & GRANULAR COMPACTED AS PER CIVIL DRAWINGS.

100 mm [4"] Ø PERFORATED PVC DISTRIBUTION PIPE CONNECTED AT BOTH ENDS OF SOIL CELL FOR PASSIVE IRRIGATION.

STRATAVAULT GENERATION 6 STRUCTURAL SOIL MODULES (30 SERIES) & 400 mm [1'-4"] RAISED FOOTPLATES LOADED WITH PLANTING SOIL AS PER LANDSCAPE SPECIFICATIONS.

STRUCTURAL BACKFILL COLLAR. FILL WITH GRANULAR MATERIAL, COMPACTING THE FINAL SURFACE TO 95%. AREAS BENEATH OR ADJACENT TO TRAFFICABLE ROAD PAVEMENT TO BE FILLED WITH 5% CEMENT STABILIZED FILL AT OPTIMAL MOISTURE CONTENT

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Transportation Engineering	Planning
Building Inspections	Planning - Transportation
Water Resources - Utility Engineering	Fire
Water Resources Stormwater and S&C	Parks, Recreation & Cultural Resources
Electric	

Revision	By	Appd.	YY.MM.DD

04 TRC FINAL SUBMITTAL	TB	TB	24.08.09
03 TRC 3RD SUBMITTAL	TB	SL	24.03.08
02 TRC 2ND SUBMITTAL	TB	SL	22.03.11
01 TRC 1ST SUBMITTAL	TB	SL	22.02.01

Issued By Appd. YY.MM.DD

Permit-Seal



Client/Project
TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

Title
CITYGREEN STRATAVAULT GENERATION 6
SITE KEYPLAN & TYPICAL SECTIONS

Project No. 178440238 Scale 1:500 & 1:20 AS SHOWN

Drawing No. CG516 Volume 29 of 45 Revision 3

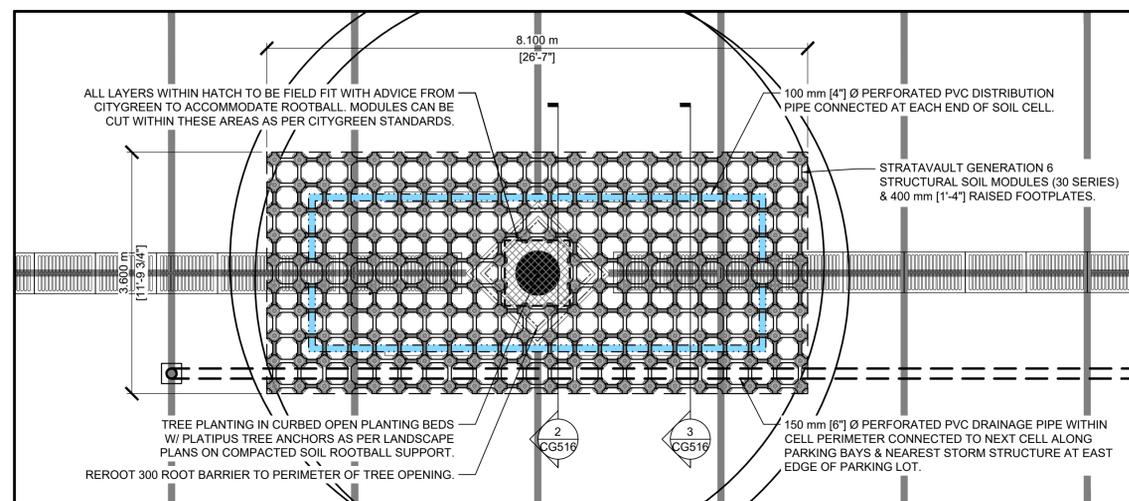
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5451 West Elm Street,
Los Angeles, CA 90045
Email: info@citygreen.com



1 SOIL CELL LAYOUT 'A'
Scale: 1:50

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Transportation Engineering	Planning
Building Inspections	Planning - Transportation
Water Resources - Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

Revision By Appd. YY.MM.DD

04 TRC FINAL SUBMITTAL	TB	TB	24.08.09
03 TRC 3RD SUBMITTAL	TB	SL	24.03.08
02 TRC 2ND SUBMITTAL	TB	SL	22.03.11
01 TRC 1ST SUBMITTAL	TB	SL	22.02.01

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Client/Project
TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

Title
CITYGREEN STRATAVAULT GENERATION 6
SOIL CELL LAYOUT 'A'

Project No. 178440238	Scale 1:50 AS SHOWN
Drawing No. CG517	Volume 30 of 45
	Revision 3



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INDEX OF SHEETS

CT110	TRAFFIC CONTROL DETAILS
CT500	TRAFFIC CONTROL PLAN PHASE 01
CT501	TRAFFIC CONTROL PLAN PHASE 01 INTERIM
CT502	TRAFFIC CONTROL PLAN PHASE 02
CT503	TRAFFIC CONTROL PLAN PHASE 03

PHASING

PHASE 01:
BEGIN CONSTRUCTION OF PARKING LOT INCLUDING BIO RETENTION BASIN, RETAINING WALL, AND UNDERGROUND UTILITIES AS SHOWN ON SHEET CT500, AND IN THE CONSTRUCTION PLANS. PLACE FINAL MARKINGS.

PHASE 01 INTERIM:
CONSTRUCT REQUIRED UNDERGROUND UTILITIES. TIE-INTO EXISTING CONDITIONS USING NECESSARY GRADING. COMPLETE PHASE 01 CONSTRUCTION. USING RSD 1101.02, SHEET 1, PLACE FINAL MARKINGS USING 4" 90MIL THERMOPLASTIC SOLID WHITE LINES ON SAUNDERS STREET. PLACE FINAL MARKINGS AND OPEN COMPLETED SECTION OF PARKING LOT TO TRAFFIC AS SHOWN ON SHEET CT501.

PHASE 02:
CONSTRUCT PARKING LOT, AND UNDERGROUND UTILITIES AS SHOWN ON SHEET CT502, AND IN THE CONSTRUCTION PLANS. PLACE FINAL MARKINGS AND OPEN COMPLETED SECTION OF PARKING LOT TO TRAFFIC.

PHASE 03:
CONSTRUCT PARKING LOT AND PLACE FINAL MARKINGS AS SHOWN ON SHEET CT503, AND IN THE CONSTRUCTION PLANS.

NOTE: CONTRACTOR SHALL MAINTAIN ACCESS AS SHOWN ON SHEET CT503.

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1180.01	SKINNY - DRUM

GENERAL NOTES

TRAFFIC PATTERN ALTERATIONS

A) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

TRAFFIC CONTROL DEVICES

B) PLACE TYPE III BARRICADES WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

MISCELLANEOUS

C) CONTRACTOR SHALL MAINTAIN SIDEWALK ACCESS AT ALL TIMES AS STATED IN THE PHASING. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY SIDEWALKS (CONCRETE, ASPHALT, OR OTHER SUITABLE MATERIAL AS APPROVED BY THE ENGINEER) AT ALL LOCATIONS WHERE THE OPEN PEDESTRIAN TRAVELWAY HAS BEEN REMOVED FOR CONSTRUCTION OPERATIONS (UTILITIES, DRAINAGE, ETC.).

D) ALL DIMENSIONS AND STATIONS IN THE TRANSPORTATION MANAGEMENT PLAN AND PHASING ARE APPROXIMATE (+/-); FIELD ADJUST AS NECESSARY OR AS DIRECTED BY THE ENGINEER.

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Transportation Engineering	Planning
Building Inspections	Planning - Transportation
Water Resources - Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

Revision	By	Appd.	YY.MM.DD

Issued	By	Appd.	YY.MM.DD

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Client/Project
TOWN OF APEX
SAUNDERS STREET
PARKING LOT
APEX, NC

Title
TRAFFIC CONTROL DETAILS

Project No.	Scale	
170440238	-	
Drawing No.	Sheet	Revision

CT110 31 of 45 0

LEGEND

- DIRECTION OF TRAFFIC FLOW
- EXIST. PVMT.
- PROPOSED PVMT.
- NORTH ARROW
- DARK GREY WORK AREA (LIGHT GREY: ONGOING)
- BARRICADE (TYPE III)
- DRUM
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- EXISTING
- PROPOSED
- TEMP

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Transportation Engineering	Planning
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Revision	By	Appd.	YY.MM.DD

Issued	By	Appd.	YY.MM.DD

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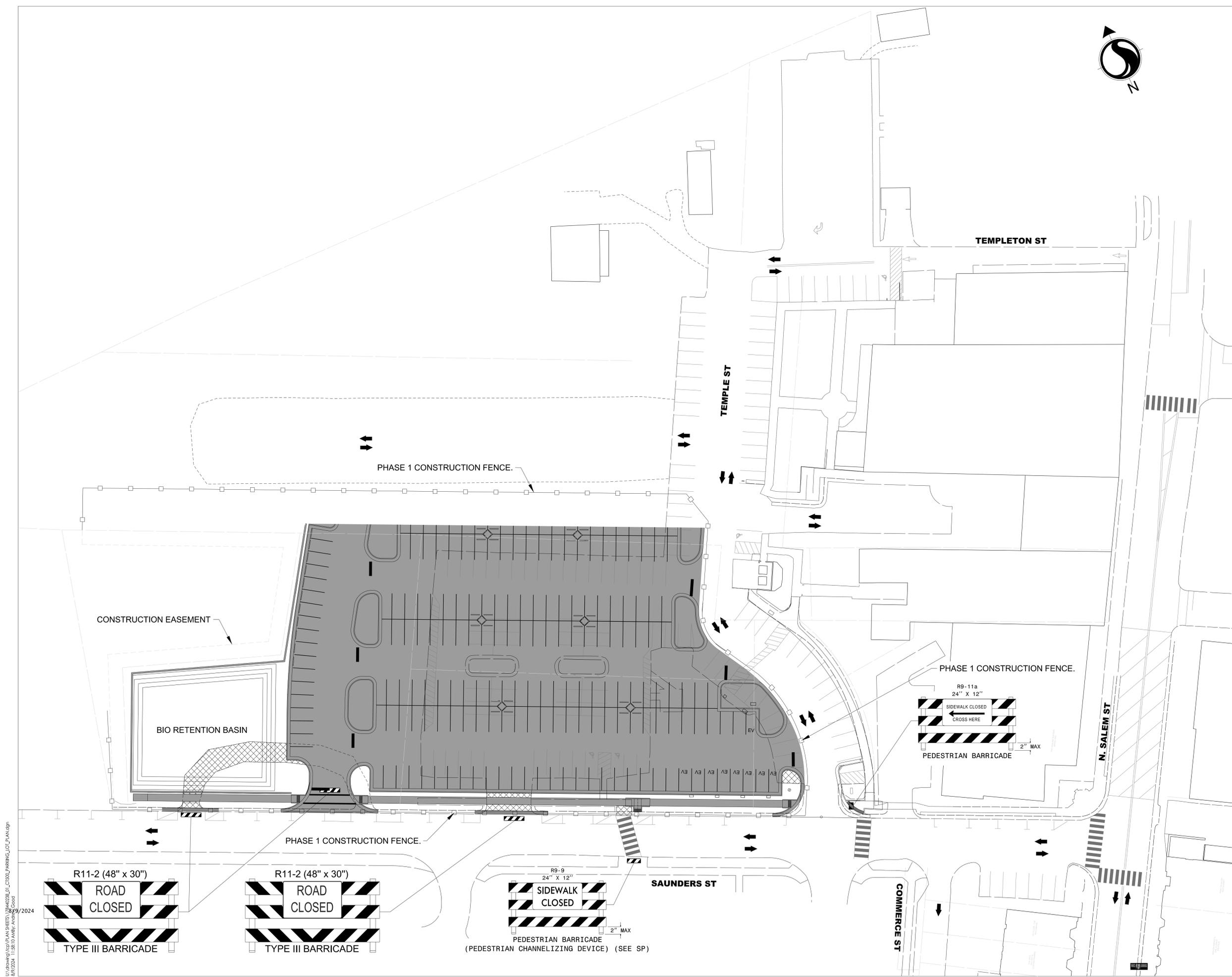


8/9/2024

Client/Project
TOWN OF APEX
SALEM STREET IMPROVEMENTS
APEX, NC

Title
TRAFFIC CONTROL PLAN
PHASE 01

Project No. 170440238	Scale 1" = 30'-0"
Drawing No.	Sheet 32 of 45
	Revision 0



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 8/9/2024 11:58:10 AM by: J.W. Woodard
 2024
 ORIGINAL SHEET - ARCHD



LEGEND

- DIRECTION OF TRAFFIC FLOW
- EXIST. PVMT.
- PROPOSED PVMT.
- NORTH ARROW
- DARK GREY WORK AREA (LIGHT GREY: ONGOING)
- BARRICADE (TYPE III)
- DRUM
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Transportation Engineering	Planning
Building Inspections	Planning - Transportation
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Revision

By	Appd.	YY.MM.DD

Issued

By	Appd.	YY.MM.DD

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Client/Project

TOWN OF APEX
SALEM STREET IMPROVEMENTS
APEX, NC

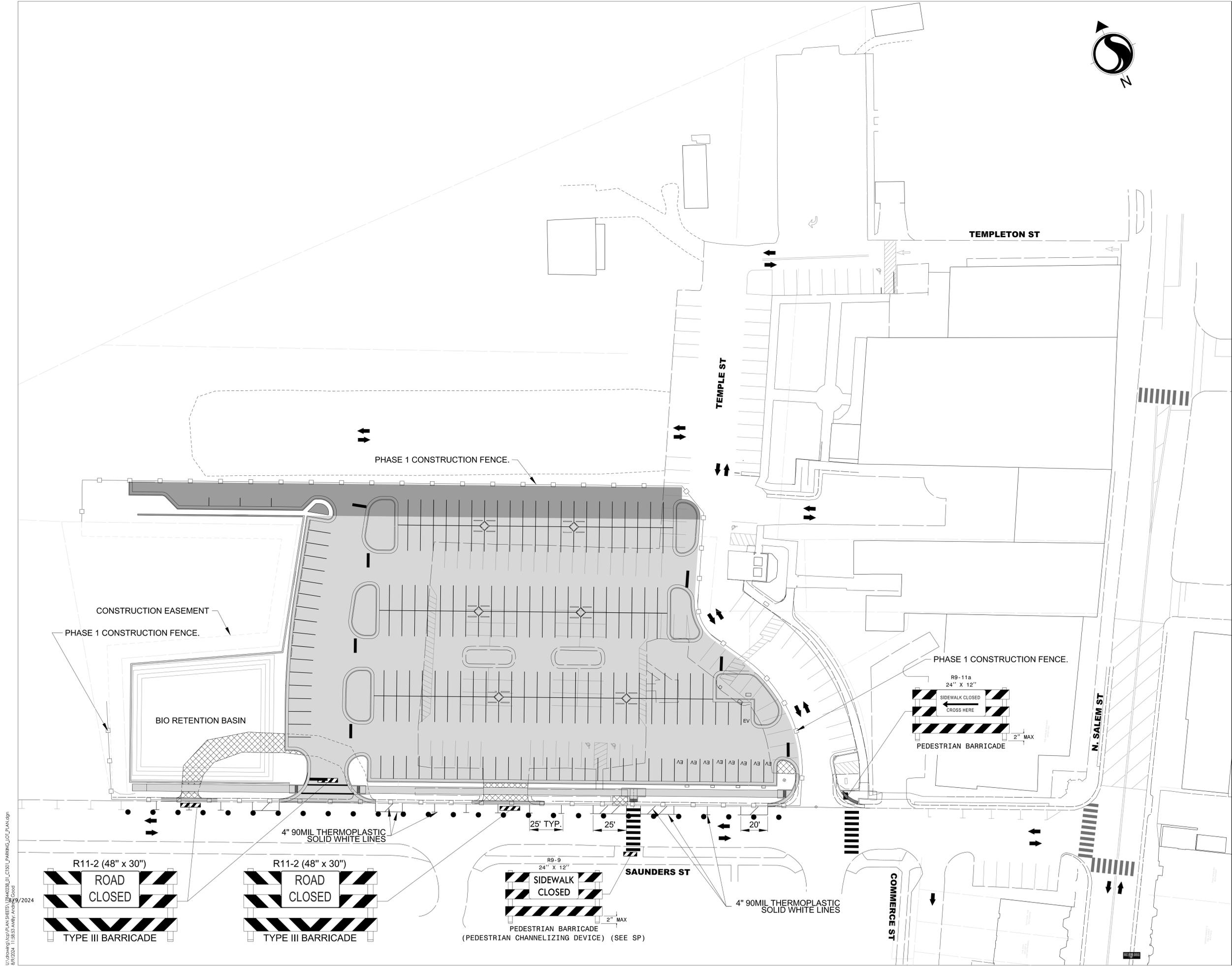
Title
TRAFFIC CONTROL PLAN
PHASE 01 INTERIM

Project No. Scale

170440238 1" = 30'-0"

Drawing No. Sheet Revision

CT501 33 of 45 0



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 8/9/2024 11:58:53 AM by: J.W. Woodard
 2024 ORIGINAL SHEET - ARCH D

LEGEND

-  DIRECTION OF TRAFFIC FLOW
 -  EXIST. PVMT.
 -  PROPOSED PVMT.
 -  NORTH ARROW
 -  DARK GREY WORK AREA (LIGHT GREY: ONGOING)
 -  BARRICADE (TYPE III)
 -  DRUM
 -  FLASHING ARROW BOARD
 -  FLAGGER
 -  LAW ENFORCEMENT
-
-  EXISTING
 -  PROPOSED
 -  TEMP

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Transportation Engineering	Planning
Building Inspections	Planning - Transportation
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Electric	

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8/9/2024

Client/Project

TOWN OF APEX
SALEM STREET IMPROVEMENTS
APEX, NC

Title
TRAFFIC CONTROL PLAN
PHASE 02

Project No. Scale

170440238 1" = 30'-0"

Drawing No. Sheet Revision

CT502 34 of 45 0



LEGEND

- DIRECTION OF TRAFFIC FLOW
- EXIST. PVMT.
- PROPOSED PVMT.
- NORTH ARROW
- DARK GREY WORK AREA (LIGHT GREY: ONGOING)
- BARRICADE (TYPE III)
- DRUM
- FLASHING ARROW BOARD
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Building Inspections	Planning - Transportation
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Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

Revision

Issued

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Sealed by: 8/9/2024

Client/Project
TOWN OF APEX
SALEM STREET IMPROVEMENTS
APEX, NC

Title
TRAFFIC CONTROL PLAN
PHASE 03

Project No. 17040238 Scale 1" = 30'-0"

Drawing No. Sheet Revision

CT503 35 of 45 0

MAINTAIN ACCESS TO DWELLING DURNING CONSTUSTION AS DIRECTED BY THE ENGINEER

MAINTAIN ACCESS TO BUSINESS DURNING CONSTUSTION AS DIRECTED BY THE ENGINEER

MAINTAIN ACCESS TO ALLEYWAY DURNING CONSTUSTION AS DIRECTED BY THE ENGINEER

MAINTAIN ACCESS TO DUMPSTER DURNING CONSTUSTION AS DIRECTED BY THE ENGINEER



CONSTRUCTION EASEMENT

BIO RETENTION BASIN

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ORIGINAL SHEET - ARCH D

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LEGEND

- W — EXISTING WATERLINE
- UGE — EXISTING UNDERGROUND ELECTRIC LINE
- SS — EXISTING SANITARY SEWER LINE
- E — PROPOSED ELECTRIC LINE
- W — PROPOSED WATERLINE
- COMM — PROPOSED COMMUNICATION LINE
- PROPOSED YARD HYDRANT
- PROPOSED ELECTRICAL BOX

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Revision By Appd. Y1MM.D1

07 SIGNATURE_SET	--	24.08.09
06 TRC_6TH_SUBMITTAL	--	24.07.29
05 TRC_5TH_SUBMITTAL	--	24.05.31
04 TRC_4TH_SUBMITTAL	--	24.04.01
03 TRC_3RD_SUBMITTAL	--	24.03.01
02 TRC_2ND_SUBMITTAL	--	22.03.1
01 TRC_1ST_SUBMITTAL	--	22.02.0

Issued By Appd. Y1MM.D1

Permit Seal



8-8-24

Client/Project

TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

Title

UTILITY PLAN

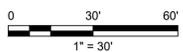
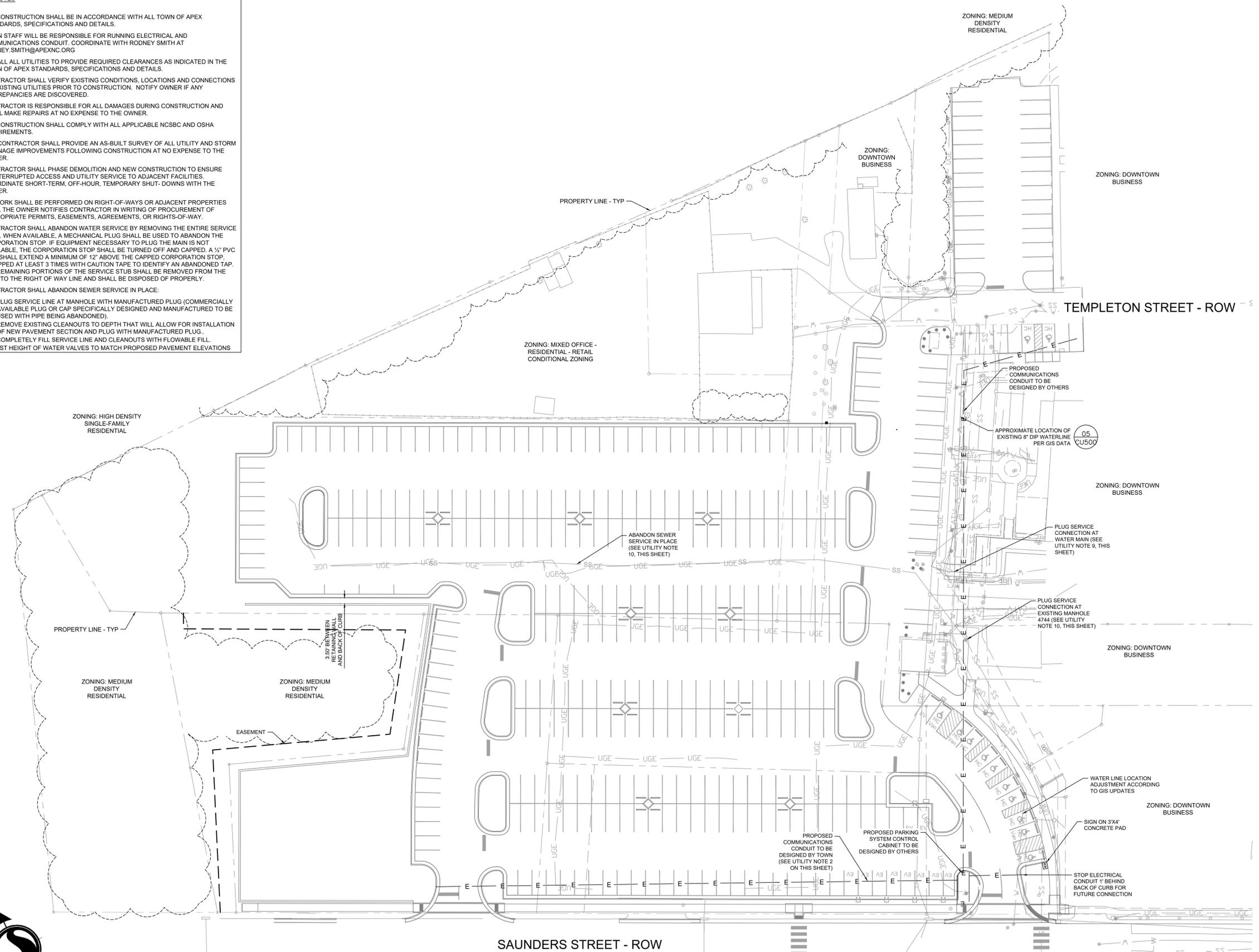
Project No. 178440238 Scale 1" = 30'-0"

Drawing No. Sheet Revision

CU100 36 of 45 0

UTILITY NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL TOWN OF APEX STANDARDS, SPECIFICATIONS AND DETAILS.
2. TOWN STAFF WILL BE RESPONSIBLE FOR RUNNING ELECTRICAL AND COMMUNICATIONS CONDUIT. COORDINATE WITH RODNEY SMITH AT RODNEY.SMITH@APEXNC.ORG
3. INSTALL ALL UTILITIES TO PROVIDE REQUIRED CLEARANCES AS INDICATED IN THE TOWN OF APEX STANDARDS, SPECIFICATIONS AND DETAILS.
4. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS, LOCATIONS AND CONNECTIONS TO EXISTING UTILITIES PRIOR TO CONSTRUCTION. NOTIFY OWNER IF ANY DISCREPANCIES ARE DISCOVERED.
5. CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGES DURING CONSTRUCTION AND SHALL MAKE REPAIRS AT NO EXPENSE TO THE OWNER.
6. ALL CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE NCSBC AND OSHA REQUIREMENTS.
7. THE CONTRACTOR SHALL PROVIDE AN AS-BUILT SURVEY OF ALL UTILITY AND STORM DRAINAGE IMPROVEMENTS FOLLOWING CONSTRUCTION AT NO EXPENSE TO THE OWNER.
8. CONTRACTOR SHALL PHASE DEMOLITION AND NEW CONSTRUCTION TO ENSURE UNINTERRUPTED ACCESS AND UTILITY SERVICE TO ADJACENT FACILITIES. COORDINATE SHORT-TERM, OFF-HOUR, TEMPORARY SHUT-DOWNS WITH THE OWNER.
9. NO WORK SHALL BE PERFORMED ON RIGHT-OF-WAYS OR ADJACENT PROPERTIES UNTIL THE OWNER NOTIFIES CONTRACTOR IN WRITING OF PROCUREMENT OF APPROPRIATE PERMITS, EASEMENTS, AGREEMENTS, OR RIGHTS-OF-WAY.
10. CONTRACTOR SHALL ABANDON WATER SERVICE BY REMOVING THE ENTIRE SERVICE STUB. WHEN AVAILABLE, A MECHANICAL PLUG SHALL BE USED TO ABANDON THE CORPORATION STOP. IF EQUIPMENT NECESSARY TO PLUG THE MAIN IS NOT AVAILABLE, THE CORPORATION STOP SHALL BE TURNED OFF AND CAPPED. A 1/2" PVC PIPE SHALL EXTEND A MINIMUM OF 12" ABOVE THE CAPPED CORPORATION STOP, WRAPPED AT LEAST 3 TIMES WITH CAUTION TAPE TO IDENTIFY AN ABANDONED TAP. ALL REMAINING PORTIONS OF THE SERVICE STUB SHALL BE REMOVED FROM THE MAIN TO THE RIGHT OF WAY LINE AND SHALL BE DISPOSED OF PROPERLY.
11. CONTRACTOR SHALL ABANDON SEWER SERVICE IN PLACE:
 - 11.1. PLUG SERVICE LINE AT MANHOLE WITH MANUFACTURED PLUG (COMMERCIALY AVAILABLE PLUG OR CAP SPECIFICALLY DESIGNED AND MANUFACTURED TO BE USED WITH PIPE BEING ABANDONED).
 - 11.2. REMOVE EXISTING CLEANOUTS TO DEPTH THAT WILL ALLOW FOR INSTALLATION OF NEW PAVEMENT SECTION AND PLUG WITH MANUFACTURED PLUG.
 - 11.3. COMPLETELY FILL SERVICE LINE AND CLEANOUTS WITH FLOWABLE FILL.
12. ADJUST HEIGHT OF WATER VALVES TO MATCH PROPOSED PAVEMENT ELEVATIONS



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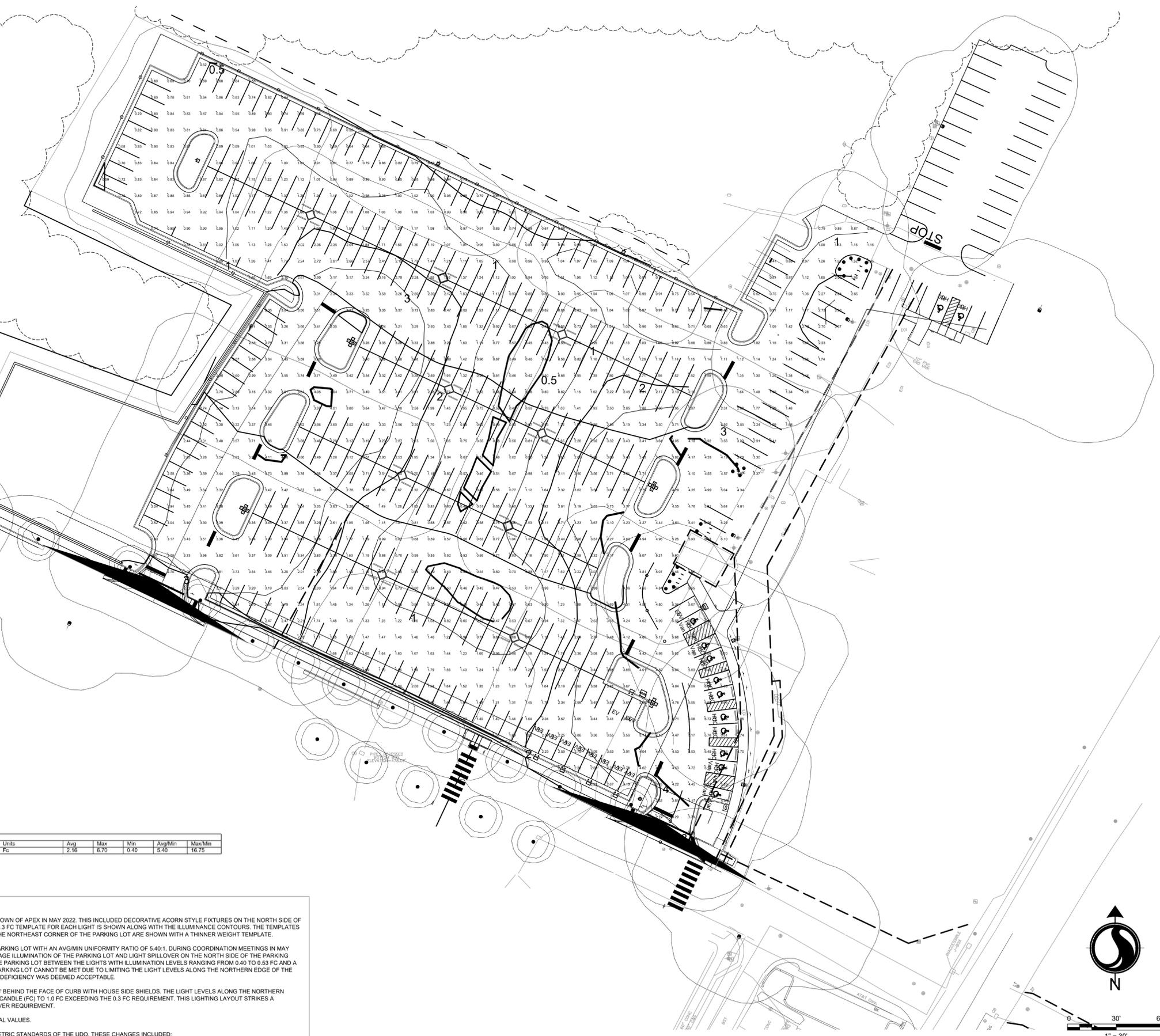


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The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay. The Copyrights to all designs and drawings are the property of Stantec. Reproduction or use for any purpose other than that authorized by Stantec is forbidden.

TOWN OF APEX NOTES

- 1) All outdoor light fixtures shall be located a minimum of 10 feet from a property or right-of-way line, and at least two feet away from any required perimeter or streetscape buffer and tree save area.
- 2) Lamps for non-cutoff light fixtures shall not exceed 100 watts.
- 3) Wall pack light fixtures must be fully shielded, true cutoff type fixtures with a concealed lamp/light source. The lighting must be directed downward and the wattage must not exceed 100 watts.
- 4) Floodlights or other types of lighting are prohibited unless approval is given through the development review process and reflected on the approved site plan.
- 5) Awnings and canopies used for accents over doors and windows shall not be internally lit.
- 6) Controls shall be provided that automatically extinguish all outdoor lighting when sufficient daylight is available using a control device or system such as a photoelectric switch, astronomical time switch or equivalent functions from a programmable lighting controller, building automation system, or lighting energy management system, all with battery or similar backup power or device.
- 7) For non-residential uses, the lumens for each fixture shall be reduced by at least 30% no later than one (1) hour after the business is closed to the public except that lighting reductions are not required for the following:
 - i. When a site contains no more than two (2) fixtures.
 - ii. Code required lighting for steps, stairs, walkways, and building entrances.
 - iii. Motion activated lighting.
 - iv. Lighting approved by a Special Use Permit in which times of operation are specifically identified.
 - v. Businesses that operate on a 24-hour basis.
 - vi. When in the opinion of the Technical Review Committee, lighting levels must be maintained to ensure the health, safety, and welfare of the community.
- 8) Before certificates of occupancy are released, the owner/builder must supply the Town with a final letter of certification from the lighting engineer and/or lighting manufacturer verifying that all site lighting is installed according to Town standards, the approved plans, and any applicable conditions.



Calculation Summary

Calculation Summary Label	Calc Type	Units	Avg	Max	Min	Avg/Min	Max/Min
Entire Parking Lot	Illuminance	Fc	2.16	6.70	0.40	5.40	16.75

NOTE: ALL LIGHTING CALCULATION VALUES ARE SHOWN IN INITIAL VALUES.

SUMMARY

THIS LIGHTING LAYOUT CONCEPT WAS COORDINATED WITH OFFICIALS FROM THE TOWN OF APEX IN MAY 2022. THIS INCLUDED DECORATIVE ACORN STYLE FIXTURES ON THE NORTH SIDE OF SAUNDERS STREET MATCHING THE EXISTING FIXTURES ON THE SOUTH SIDE. THE 0.3 FC TEMPLATE FOR EACH LIGHT IS SHOWN ALONG WITH THE ILLUMINANCE CONTOURS. THE TEMPLATES FOR THE EXISTING FIXTURES ON THE SOUTH SIDE OF SAUNDERS STREET AND IN THE NORTHEAST CORNER OF THE PARKING LOT ARE SHOWN WITH A THINNER WEIGHT TEMPLATE.

THIS LAYOUT PROVIDES AN AVERAGE ILLUMINATION OF 2.16 FC FOR THE ENTIRE PARKING LOT WITH AN AVG/MIN UNIFORMITY RATIO OF 5.40:1. DURING COORDINATION MEETINGS IN MAY 2022, LOWER WATTAGE/LUMEN FIXTURES WERE REQUESTED TO LOWER THE AVERAGE ILLUMINATION OF THE PARKING LOT AND LIGHT SPILLOVER ON THE NORTH SIDE OF THE PARKING LOT. THIS RESULTED IN A FEW DOZEN CALCULATION POINTS IN THE CENTER OF THE PARKING LOT BETWEEN THE LIGHTS WITH ILLUMINATION LEVELS RANGING FROM 0.40 TO 0.53 FC AND A UNIFORMITY RATIO GREATER THAN 4:1. THE UNIFORMITY RATIO FOR THE ENTIRE PARKING LOT CANNOT BE MET DUE TO LIMITING THE LIGHT LEVELS ALONG THE NORTHERN EDGE OF THE PARKING LOT / RESIDENTIAL PROPERTY LINE AS MUCH AS POSSIBLE. THIS MINIMAL DEFICIENCY WAS DEEMED ACCEPTABLE.

THE LAYOUT INCLUDES LIGHTS ALONG THE NORTH EDGE OF THE PARKING LOT 3.75' BEHIND THE FACE OF CURB WITH HOUSE SIDE SHIELDS. THE LIGHT LEVELS ALONG THE NORTHERN EDGE OF THE PARKING LOT / RESIDENTIAL PROPERTY LINE RANGE FROM 0.5 FOOT-CANDLE (FC) TO 1.0 FC EXCEEDING THE 0.3 FC REQUIREMENT. THIS LIGHTING LAYOUT STRIKES A BALANCE BETWEEN THE UNIFORMITY RATIO REQUIREMENT AND THE LIGHT SPILLOVER REQUIREMENT.

ALL PROPOSED PARKING LOT LIGHTING CALCULATION VALUES ARE SHOWN IN INITIAL VALUES.

ON OCTOBER 24, 2023, THE TOWN COUNCIL APPROVED CHANGES TO THE PHOTOMETRIC STANDARDS OF THE UDO. THESE CHANGES INCLUDED:

- LED FIXTURE REQUIREMENTS - (ALL PROPOSED FIXTURES ARE MODELED WITH LED)
- CHANGE IN FIXTURE DESIGNATION FROM WATTAGE TO LUMENS - FIXTURES INSTALLED WILL BE BASED ON LOCAL UTILITY COMPANY AVAILABILITY.
- PROHIBITION OF NON-CUT OFF LIGHTS - DECORATIVE ACORN STYLE FIXTURES ARE MODELED ON THE NORTH SIDE OF SAUNDERS STREET MATCHING THE EXISTING FIXTURES ON THE SOUTH SIDE.
- BUG RATING STANDARDS - FIXTURES INSTALLED WILL BE BASED ON LOCAL UTILITY COMPANY AVAILABILITY.
- DIMMING OF COMMERCIAL LIGHTING AFTER CLOSING - DIMMING NOT REQUESTED/REQUIRED FOR PUBLIC PARKING.

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

Transportation Engineering	Planning
Building Inspections	Planning - Transportation
Water Resources - Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

Revision	By	Appd.	YY.MM.DD

07 SIGNATURE_SET	--	--	24.08.09
06 TRC_6TH_SUBMITTAL	--	--	24.07.29
05 TBC_5TH_SUBMITTAL	--	--	24.05.31
04 TRC_4TH_SUBMITTAL	--	--	24.04.01
03 TRC_3RD_SUBMITTAL	--	--	24.03.01
02 TRC_2ND_SUBMITTAL	--	--	22.03.1
01 TRC_1ST_SUBMITTAL	--	--	22.02.0

Issued By Appd. YY.MM.DD



Client/Project
TOWN OF APEX

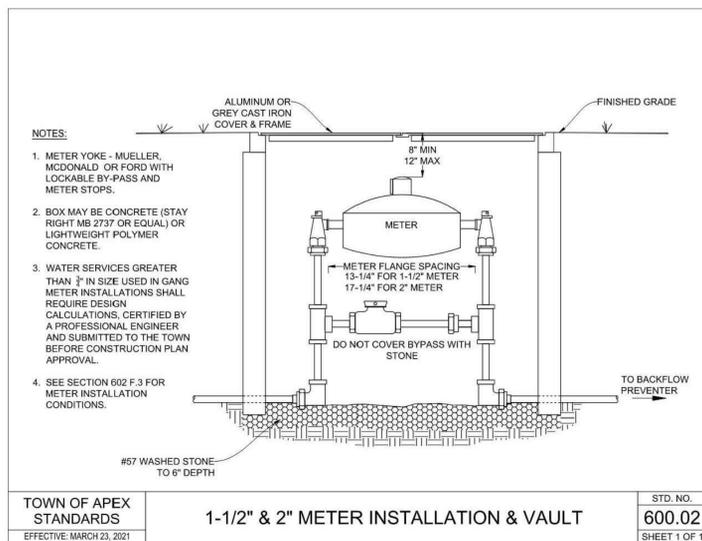
SAUNDERS STREET
PARKING LOT
APEX, NC

Title
PHOTOMETRIC PLAN

Project No.	Scale	
178440238	AS NOTED	
Drawing No.	Sheet	Revision

CU101 37 of 45 0

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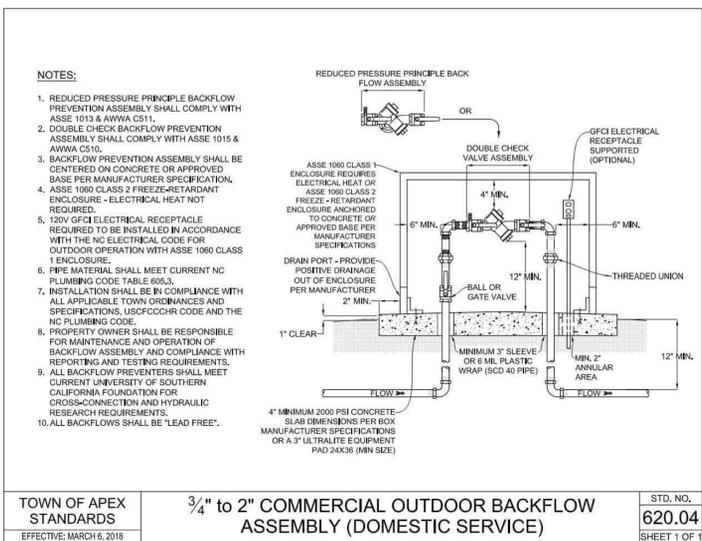


TOWN OF APEX STANDARDS
EFFECTIVE: MARCH 23, 2021

1-1/2" & 2" METER INSTALLATION & VAULT

STD. NO. **600.02**
SHEET 1 OF 1

1 1-1/2" METER INSTALLATION & VAULT
SCALE: N.T.S.

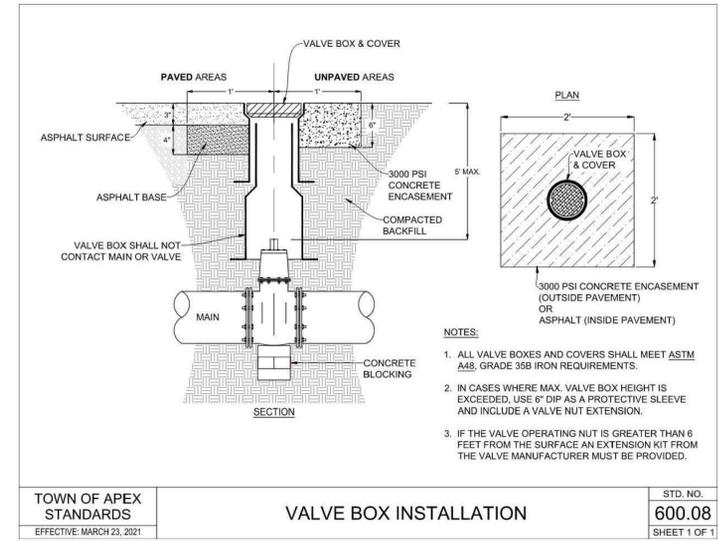


TOWN OF APEX STANDARDS
EFFECTIVE: MARCH 6, 2018

3/4" to 2" COMMERCIAL OUTDOOR BACKFLOW ASSEMBLY (DOMESTIC SERVICE)

STD. NO. **620.04**
SHEET 1 OF 1

2 2" BACKFLOW PREVENTER
SCALE: N.T.S.

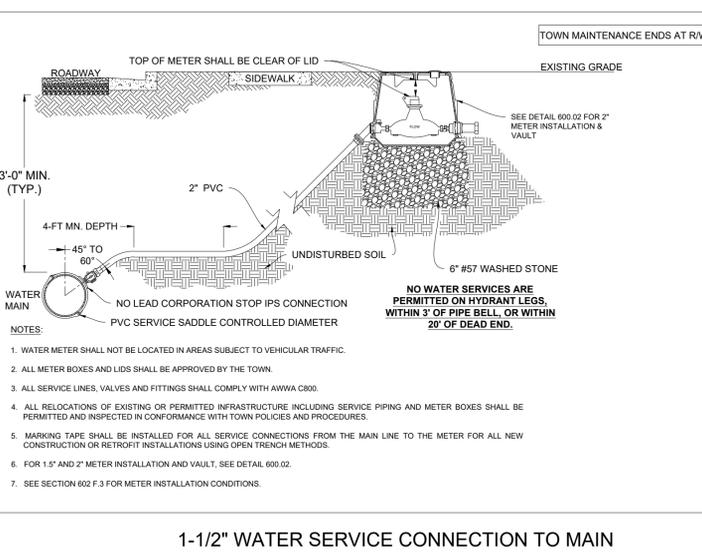


TOWN OF APEX STANDARDS
EFFECTIVE: MARCH 23, 2021

VALVE BOX INSTALLATION

STD. NO. **600.08**
SHEET 1 OF 1

3 VALVE BOX INSTALLATION
SCALE: N.T.S.

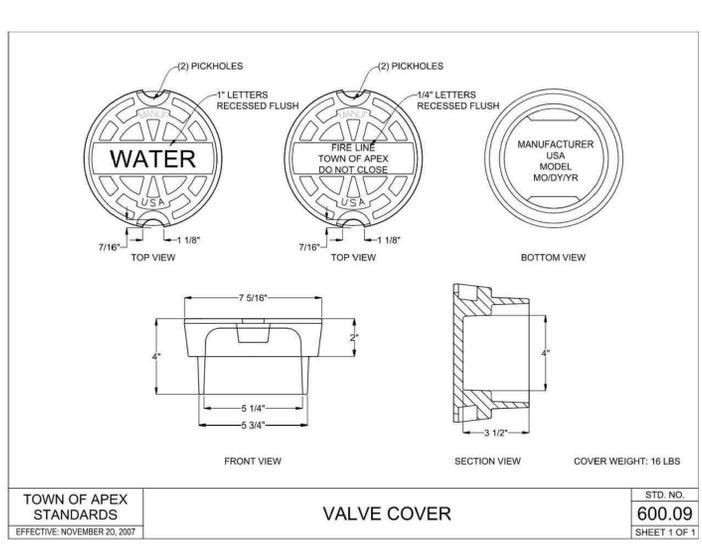


TOWN OF APEX STANDARDS
EFFECTIVE: NOVEMBER 20, 2007

1-1/2" WATER SERVICE CONNECTION TO MAIN

STD. NO. **600.09**
SHEET 1 OF 1

4 1-1/2" WATER SERVICE CONNECTION TO MAIN
SCALE: N.T.S.

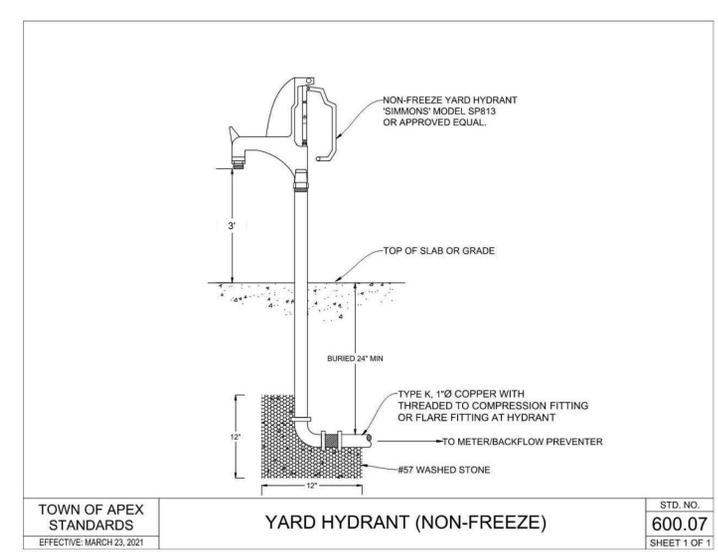


TOWN OF APEX STANDARDS
EFFECTIVE: NOVEMBER 20, 2007

VALVE COVER

STD. NO. **600.09**
SHEET 1 OF 1

5 VALVE COVER
SCALE: N.T.S.



TOWN OF APEX STANDARDS
EFFECTIVE: MARCH 23, 2021

YARD HYDRANT (NON-FREEZE)

STD. NO. **600.07**
SHEET 1 OF 1

6 NON-FREEZE YARD HYDRANT
SCALE: N.T.S.

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

Transportation Engineering	Planning
Building Inspections	Planning - Transportation
Water Resources - Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

Revision By Appd. YYMM.DD

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06 TRC_6TH_SUBMITTAL	--	24.07.29
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02 TRC_2ND_SUBMITTAL	--	22.03.11
01 TRC_1ST_SUBMITTAL	--	22.02.01

Issued By Appd. YYMM.DD

Permit Seal

 8-8-24

Client/Project
TOWN OF APEX
 SAUNDERS STREET
 PARKING LOT
 APEX, NC

Title
UTILITY DETAILS

Project No. 178440238 Scale AS NOTED
 Drawing No. Sheet Revision
CU500 38 of 45 0



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 2024/08/08 12:14 AM By: Peh, Akso



Autobahn Series ATB0 Roadway Lighting

PRODUCT OVERVIEW



Features:

OPTICAL

The Autobahn's new molded silicone optics provide exceptional performance. Silicone optics are superior to other polymer materials in the areas of: optical efficiency, thermal performance, and reduction in dirt accumulation, all of which can lead to long term lumen degradation and a shift in optical distribution. Also, because silicone allows for the molding of fine details as well as thick sections, it produces the most crisp, clean and well-defined lighting distributions available. Silicone optics paired with modern LEDs allow the Autobahn to take full advantage of both technologies.

Same Light: Performance is comparable to 100-400W HPS roadway luminaires.

White Light: Correlated color temperature - 4000K, or optional 2700K, 3000K or 5000K, all 70 CRI minimum.

Unique IP66 rated LED light engines provided 0% uplight and restrict light to within sidewalk depth, providing optimal application coverage and optimal pole spacing. Available in Type II, III, IV, and V roadway distributions.

ELECTRICAL

Expected Life: LED light engines are rated >100,000 hours at 25°C, L70. Electronic driver has an expected life of 100,000 hours at a 25°C ambient.

Lower Energy: Saves an expected of 40-60% over comparable HID luminaires.

Robust Surge Protection: Two different surge protection options provide a minimum of ANSI C136.2 10kV/5kA protection. 20kV/10kA protection is also available.

MECHANICAL

Includes standard AEL lineman-friendly features such as tool-less entry, 3 station terminal block and quick disconnects. Bubble level located inside the electrical compartment for easy leveling at installation.

Rugged die-cast aluminum housing and door are polyester powder-coated for durability and corrosion resistance. Rigorous five-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 7 (per ASTM D1654) after 5000 hours exposure to salt fog chamber (operated per ASTM B117).

Master arm mount is adjustable for arms from 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) diameter. Provides a 3G vibration rating per ANSI C136.31

Wildlife shield is cast into the housing (not a separate piece).

CONTROLS

NEMA 3 pin photocontrol receptacle is standard, with the Acuity designed ANSI standard 7 pin receptacle optionally available.

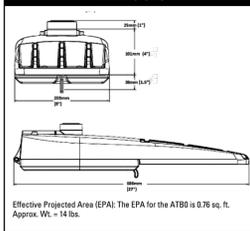
Premium solid state locking style photocontrol - PCSS (10 year rated life) Extreme long life solid state locking style photocontrol - PCLL (20 year rated life).

Optional onboard Adjustable Output module allows the light output and input wattage to be modified to meet site specific requirements, and also can allow a single fixture to be flexibly applied in many different applications.

Applications:

- Roadways
- Off ramps
- Residential streets
- Parking lots

DIMENSIONS



Effective Projected Area (EPA): The EPA for the ATB0 is 0.76 sq. ft. Approx. Wt. = 14 lbs.

STANDARDS

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

Color temperatures of <= 3000K must be specified for International Dark-Sky Association certification.

Rated for -40°C to 40°C ambient
CSA Certified to U.S. and Canadian standards
Complies with ANSI: C136.2, C136.10, C136.14, C136.31, C136.15, C136.37

© 2014-2021 Acuity Brands Lighting, Inc. ATB0 05/10/21



Autobahn Series ATB0 Roadway Lighting

ORDERING INFORMATION

Series	Performance Packages	Voltage	Optics
ATB0 Autobahn LED Roadway	P201 5,369 lumens nominal P202 6,943 lumens nominal P203 10,056 lumens nominal P204 12,176 lumens nominal P205 13,767 lumens nominal P301 10,367 lumens nominal P302 12,185 lumens nominal P303 15,251 lumens nominal P304 17,114 lumens nominal P305 19,893 lumens nominal P451 18,220 lumens nominal P452 19,067 lumens nominal P453 23,592 lumens nominal P454 25,070 lumens nominal P455 27,091 lumens nominal P456 28,547 lumens nominal P457 29,715 lumens nominal	MVOLT Multi-volt, 120-277V 347 347V 480 480V XVOLT 277V-480V	R2 Roadway Type II R3 Roadway Type III R4 Roadway Type IV R5 Roadway Type V

Options			
Color Temperature (CCT) (Blank) 4000K CCT, 70 CRI Min. 27K 2700K CCT, 70 CRI Min. 3K 3000K CCT, 70 CRI Min. 5K 5000K CCT, 70 CRI Min.	UMR-XX 8" Horizontal Arm for Round Pole, Painted to match Fixture UMS-XX 8" Horizontal Arm for Square Pole, Painted to match Fixture UMR-GALV 8" Horizontal Arm for Round Pole, Galvanized UMS-GALV 8" Horizontal Arm for Square Pole, Galvanized	Accessories: House Side Shields for field installation ATBOP20XR2/RSHSS for use with P201 - P205, R2 & R5 distributions ATBOP20XR3/R4HSS for use with P201 - P205, R3 & R4 distributions ATBOP30XR2/RSHSS for use with P301 - P305, R2 & R5 distributions ATBOP30XR3HSS for use with P301 - P305, R3 distribution ATBOP30XR4HSS for use with P301 - P305, R4 distribution ATBOP45XR2/RSHSS for use with P451 - P457, R2 & R5 distributions ATBOP45XR3HSS for use with P451 - P457, R3 distribution	Notes 1 Not available in 347 or 480V. 2 Not available with NR. 3 Not available with P451 - P457 performance packages. 4 Not available with P201 performance package + 247V or 480V. 5 Not available with P456 or P457 performance package options. 6 Not available with XVOLT option.
Paint (Blank) Gray (Standard) BK Black BZ Bronze DOB Dark Bronze G Graphite WH White GN Green	Controls P7 7 Pin Photocontrol Receptacle (Dimmable Driver Included) NR No Photocontrol Receptacle AO Field Adjustable Output PCSS Solid State Lighting Photocontrol (120-277V) PCLL Solid State Long Life Photocontrol SH Shorting Cap	Terminal Block (Blank) Terminal Block (Standard) T2 Wired to L1 & L2 Positions	Packaging (Blank) Single Unit (Standard) JP Job Pack (42/Pallet)
Misc. BL External Bubble Level HSS House-Side Shield NL Nema Label XL Not CSA Certified			



Warranty Five-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions
Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25°C. Specifications subject to change without notice.
Please contact your sales representative for the latest product information.

Autobahn Series ATB0 Roadway Lighting

PERFORMANCE PACKAGE

ATB0	Distribution	Input Watts	2700K		3000K		4000K/5000K	
			Lumens	LPW	Lumens	LPW	Lumens	LPW
P201	R2	36	4,983	137	5,473	151	5,488	150
	R3		4,952	136	5,107	140	5,553	152
	R4		5,045	139	5,130	141	5,346	147
	R5		5,084	142	5,384	148	5,387	150
	R2		6,429	132	7,100	147	7,203	148
P202	R2	49	6,390	131	6,679	137	7,237	148
	R4		6,517	136	6,749	140	6,906	144
	R5		6,560	137	6,988	146	6,951	146
	R2		9,005	130	10,050	144	10,150	147
	R3		8,951	129	9,471	134	10,260	148
P203	R4	70	9,494	137	9,673	139	10,060	145
	R5		9,188	134	9,784	142	9,736	142
	R2		11,007	125	11,800	136	12,410	141
	R4		10,940	124	11,490	132	12,470	141
	R5		11,485	132	11,900	136	12,170	139
P204	R2	88	11,230	131	11,780	137	11,900	138
	R3		12,339	121	12,650	125	13,920	137
	R4		12,264	120	13,110	139	14,130	138
	R5		13,051	130	13,880	136	13,830	138
	R2		12,589	127	13,080	132	13,340	135
P301	R2	67	9,527	140	10,450	154	10,460	153
	R3		9,469	139	10,590	158	10,820	158
	R4		9,579	144	10,210	152	10,150	152
	R5		9,720	145	10,370	154	10,300	154
	R2		11,118	135	11,790	142	12,300	149
P302	R3	83	11,050	134	12,290	150	12,520	152
	R4		11,589	140	12,720	153	12,280	148
	R5		11,343	137	12,120	147	12,020	145
	R2		14,152	130	15,090	140	15,420	141
	R3		14,066	131	15,230	142	15,950	148
P303	R4	106	14,514	136	15,720	146	15,380	144
	R5		14,439	136	15,140	142	15,300	144
	R2		16,705	130	17,180	136	18,010	141
	R3		16,603	131	17,890	141	18,230	144
	R4		16,845	135	18,160	145	17,850	143
P304	R5	124	17,043	137	17,670	142	18,060	145
	R2		18,388	124	19,720	134	20,160	136
	R3		18,276	124	20,070	135	20,440	138
	R4		18,695	129	20,050	138	19,810	137
	R5		18,761	130	19,350	135	19,880	138
P305	R2	145	18,761	130	19,350	135	19,880	138



Warranty Five-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions
Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25°C. Specifications subject to change without notice.
Please contact your sales representative for the latest product information.

1 COBRA LIGHT FIXTURE - AUTOBAHN

SCALE: N.T.S.

Hartsfield AcornLED Series HTFL

PRODUCT OVERVIEW



Features:

MECHANICAL

Heavy grade, A360 cast aluminum (<1% copper)
Optional internal or external NEMA twist lock photocontrol receptacle. Housing contains a tempered glass window to allow light to reach the cell for internal versions
Mount to slip-fitter that will accept 3" high by 2-7/8" to 3-1/8" O.D. pole tenon
Super Durable polyester powder coat finish with rigorous pretreatment process meets 5,000 hour salt spray rating per ASTM B117
Luminaire is IP65 rated
Mounts to 3" x 3" pole top tenons
Base and optical ship separately

ELECTRICAL

All surge protection meets ANSI/IEEE G2.41.2 10kV/10kA
Standard SPD meets 10kV/5kA per ANSI C136.2-2015
20kV SPD Option meets 20kV/10kA per ANSI C136.2-2015
Quick disconnect connectors for ease of installation and maintenance
LED drivers meet maximum total harmonic distortion (THD) of 20% and are RoHS compliant. Minimum operating temperature is -40°C. Driver life has minimum estimated life of 100,000 hours at 25°C ambient.
120-277V 50/60 Hz and 347-480V 60 Hz

OPTICAL

Color temperature options of 2700K, 3000K, 4000K, and 5000K CCT with 70 CRI minimum
Optical distributions: Non-Prismatic Type III & Type V in both Polycarbonate and Acrylic
8" and 9" Globe Options
L80 at 100,000 hours at 40°C ambient

CONTROL OPTIONS

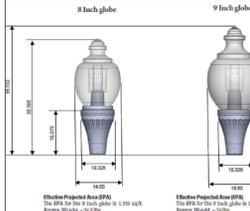
Adjust Output (AO) module - Onboard device that adjusts the light output and input wattage to meet site specific requirements. The AO module is present at the factory to position number 8 (see chart).
Long Life Photocontrol (PCLL) - 20 Year Life
3 pin receptacle is standard. 7 pin (P7) or no receptacle (NR) are optional

TESTING / COMPLIANCE

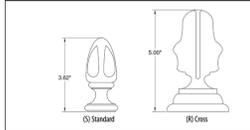
UL 1598 - Wet Locations Safety Listing
Suitable for ambient temperatures -40°C - 40°C
DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.
US Patent No. D910,229



DIMENSIONS



FINIAL DIMENSIONS



2 ACORN LIGHT FIXTURE -

SCALE: N.T.S.

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Hartsfield AcornLED Series HTFL

ORDERING INFORMATION

Example: HTFL P30 AS 30K R3VC AA 8R BK N 20KV P7 NL2X2 XL

Series	Performance Package	Voltage	CCT	Distribution
HTFL Hartsfield	P10 25W nominal P20 35W nominal P30 50W nominal P40 60W nominal P50 70W nominal	AS 120-277VAC AH 347-480VAC	27K 2700K 30K 3000K 40K 4000K 50K 5000K	R3 Type III R5 Type V R3VC Type III Visual Comfort w/ internal optic R5VC Type V Visual Comfort w/ internal optic R3DR Type III w/ down reflector R5DR Type V w/ down reflector
AA Acrylic AP Polycarbonate LO Less globe (electrical assembly only)	8R 8" nominal 9R 9" nominal	BK Black (Std) DBB Dark Bronze GRN Green AWVG Verde Green CMC Custom Color Match TDC RAL Color	N None S Standard R Cross	FBK Black (Std) FDBB Dark Bronze FGRN Green FAWVG Verde Green FDMC Custom Color Match FDC RAL Color

Options			
20KV 20kV/10kA surge (fall off)	HSS90 90deg House Side Shield	L1H 1 ft prewired leads	
NR No Photocontrol Receptacle	HSS120 120deg House Side Shield	L03 3 ft prewired leads	
P7 7 pin Photocontrol Receptacle	HSS180 180deg House Side Shield	L10 10 ft prewired leads	
PCSS Solid State Photocontrol 120-277V	HSS180R90 90deg House Side Shield for R3DR	L20 20 ft prewired leads	
PCLL Long Life Photocontrol 120-277V	HSS180R120 120deg House Side Shield for R3DR	L25 25 ft prewired leads	
P34 PCLL Long Life Photocontrol 347V	HSS180R180 180deg House Side Shield for R3DR	L30 30 ft prewired leads	
P48 CLL Long Life Photocontrol 480V	HSS180R90 90deg House Side Shield for R5DR		
PSK Shorting Cap	HSS180R120 120deg House Side Shield for R5DR		
SNR Non CSA listed shorting cap.	HSS180R180 180deg House Side Shield for R5DR		
NL1X1 ANSI C136.15 Wattage Label 1"x1"	AO Field Adjustable Output		
NL2X2 ANSI C136.15 Wattage Label 2"x2"	XL Not CSA Listed		
	SS Stainless Steel Hardware		
	SQ Square Bolt Tenon Screws		
	CR Corrosion Resistant Finish (Epoxy Precoat)		

Note: Check the OPTIONS MATRIX on Page 5 for compatibility & restrictions



Warranty Five-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions
Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25°C. Specifications subject to change without notice.
Please contact your sales representative for the latest product information.

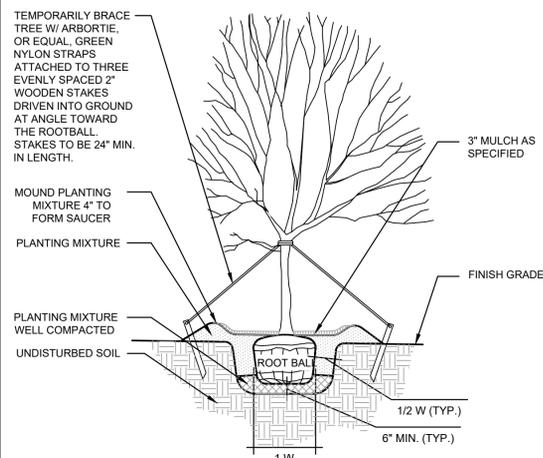
Hartsfield AcornLED Series HTFL

ACRYLIC OPTIC (AA OPTION)

LED Package	System Watts	Distribution	Optic Size	27K (2700K CCT, 70 CRI)			30K (3000K CCT, 70 CRI)			40K (4000K CCT, 70 CRI) & 50K (5000K CCT, 70 CRI)			
				Lumens	LPW	B U G	Lumens	LPW	B U G	Lumens	LPW	B U G	
P10	25	R3	8R	R3VC	3,499	138	1 5 3	3,779	142	1 5 3	3,869	153	1 5 3
				R5	3,408	130	1 5 2	3,292	142	1 5 2	3,856	152	1 5 3
				R3VC	2,973	118	1 5 2	3,159	125	1 5 2	3,287	130	1 5 2
				R5VC	2,669	105	1 4 2	2,837	112	1 4 2	2,952	117	1 5 2
				R3DR	2,928	116	1 4 2	3,111	123	1 4 2	3,237	128	1 4 2
				R5DR	2,901	118	1 4 2	3,148	125	1 4 2	3,296	135	1 4 2
		R3	9R	R3	3,460	137	1 5 3	3,677	145	1 5 3	3,826	151	1 5 3
				RS	3,449	136	1 5 2	3,665	145	1 5 2	3,813	151	1 5 2
				R3VC	2,959	116	1 5 2	3,124	123	1 5 2	3,250	128	1 5 2
				R5VC	2,639	104	1 4 2	2,805	111	1 4 2	2,918	115	1 5 2
				R3DR	2,895	114	1 4 2	3,076	122	1 4 2	3,200	126	1 4 2
				R5DR	2,947	116	1 4 2	3,132	124	1 4 2	3,259	129	1 4 2
P30	35	R3	8R	R3	4,635	134	1 5 3	4,926	143	1 5 3	5,125	149	1 5 3
				RS	4,620								

GENERAL LANDSCAPE NOTES:

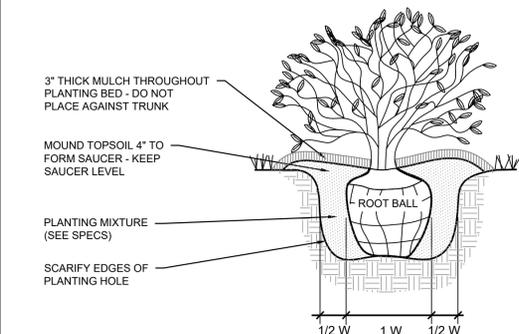
- LANDSCAPE CONTRACTOR (CONTRACTOR) SHALL VISIT SITE, INSPECT EXISTING CONDITIONS, AND REVIEW PROPOSED PLANTINGS AND RELATED WORK. LANDSCAPE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS ON PROPERTY WITH THE GENERAL CONTRACTOR AND BY CALLING LOCAL ONE-CALL OR DIG-RITE PRIOR TO STAKING PLANT LOCATIONS.
- IN CASE OF DISCREPANCY BETWEEN PLAN AND PLANT LIST, PLAN SHALL GOVERN QUANTITIES, CONTACT LANDSCAPE ARCHITECT AND/OR OWNER'S REPRESENTATIVE WITH ANY CONCERNS.
- LANDSCAPE CONTRACTOR TO COORDINATE THE PHASES OF CONSTRUCTION AND PLANTING INSTALLATIONS WITH OTHER CONTRACTORS WORKING ON SITE.
- WHERE EXISTING TREES AND/OR SIGNIFICANT SHRUB MASSINGS ARE FOUND ON SITE, WHETHER SHOWN ON THE DRAWING OR NOT, THEY SHALL BE PROTECTED AND SAVED UNLESS NOTED TO BE REMOVED AND/OR ARE IN AN AREA TO BE GRADED. ANY QUESTIONS REGARDING WHETHER PLANT MATERIAL SHOULD REMAIN OR NOT SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT AND/OR OWNER'S REPRESENTATIVE PRIOR TO REMOVAL.
- ALL EXISTING TREES TO REMAIN TO BE FERTILIZED AND PRUNED TO REMOVE DEAD WOOD AND DAMAGED OR RUBBING BRANCHES.
- NO PLANT MATERIAL SUBSTITUTIONS WILL BE ACCEPTED UNLESS APPROVAL IS REQUESTED OF THE LANDSCAPE ARCHITECT BY THE LANDSCAPE CONTRACTOR PRIOR TO INSTALLATION.
- ALL PLANT MATERIAL SHALL COMPLY WITH THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, AMERICAN ASSOCIATION OF NURSERYMEN.
- LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR ON-GOING MAINTENANCE OF ALL NEWLY INSTALLED MATERIALS UNTIL TIME OF OWNER ACCEPTANCE. ANY ACTS OF VANDALISM OR DAMAGE WHICH MAY OCCUR PRIOR TO OWNER ACCEPTANCE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- WARRANTY FOR LANDSCAPE MATERIALS SHALL BEGIN ON THE DATE OF ACCEPTANCE BY THE OWNER'S REPRESENTATIVE AFTER THE COMPLETION OF PLANTING OF ALL LANDSCAPE MATERIALS. NO PARTIAL ACCEPTANCE WILL BE CONSIDERED. LANDSCAPE CONTRACTOR SHALL PROVIDE A WRITTEN REQUEST FOR THE OWNER'S ACCEPTANCE INSPECTION. REMOVE AND REPLACE DEAD PLANT MATERIAL (25% + DEAD) IMMEDIATELY UNLESS REQUIRED TO PLANT IN THE SUCCEEDING PLANTING SEASON. A LIMIT OF ONE REPLACEMENT OF EACH TREE AND SHRUB WILL BE REQUIRED, EXCEPT FOR LOSSES CAUSED BY CONTRACTOR'S ERRORS.
- CONTRACTOR WILL SUPPLY FINISHED GRADE AND EXCAVATE AS NECESSARY TO SUPPLY 4" TOPSOIL DEPTH IN ALL PLANTING BEDS AND 4" TOPSOIL DEPTH IN ALL LAWN AREAS. BACKFILL AND CROWN PARKING LOT ISLANDS 6" ABOVE ADJACENT CURBS WITH TOPSOIL. BACKFILL DIRECTLY BEHIND ALL CURBS AND ALONG SIDEWALKS AND COMPACT TO TOP OF CURB OR WALK TO SUPPORT VEHICLE AND PEDESTRIAN WEIGHT WITHOUT SETTLING.
- ACCEPTANCE OF GRADING AND SOD SHALL BE BY LANDSCAPE ARCHITECT AND/OR PROJECT REPRESENTATIVE. THE LANDSCAPE CONTRACTOR SHALL ASSUME MAINTENANCE RESPONSIBILITY UNTIL FINAL ACCEPTANCE HAS BEEN RECEIVED. MAINTENANCE SHALL INCLUDE WATERING, WEEDING, REPLACEMENT OF WASH-OUTS AND OTHER OPERATIONS NECESSARY TO KEEP SOD IN A THRIVING CONDITION. UPON FINAL ACCEPTANCE BY LANDSCAPE ARCHITECT AND/OR OWNER'S REPRESENTATIVE, THE OWNER WILL ASSUME ALL MAINTENANCE RESPONSIBILITIES.
- LANDSCAPE CONTRACTOR SHALL GUARANTEE NEW PLANT MATERIAL THROUGH ONE CALENDAR YEAR FROM THE DATE OF OWNER'S ACCEPTANCE WITH ALL REPLACEMENTS TO BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- PLANT MATERIAL LOCATIONS SHOWN ARE DIAGRAMMATIC AND MAY BE SUBJECT TO CHANGE IN THE FIELD AS REQUIRED. CONTRACTOR TO VERIFY QUANTITIES SHOWN ON PLAN.
- REPAIR ALL DAMAGE TO PROPERTY FROM PLANTING OPERATIONS AT NO COST TO THE OWNER.
- OWNER OR OWNER'S REPRESENTATIVE SHALL INSPECT LANDSCAPE INSTALLATION AND HAVE THE RIGHT TO REJECT AND WITHHOLD PAYMENT ON ANY PLANT MATERIAL(S) OF DAMAGED OR POOR QUALITY OR NOT MEETING SPECIFICATIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SOIL, EROSION, AND DUST CONTROL MEASURES PRIOR TO AND DURING CONSTRUCTION. THE LANDSCAPE CONTRACTOR SHALL PREVENT EROSION OF SOIL AND ENTRY OF SOIL-BEARING WATER AND AIRBORNE DUST ONTO ADJACENT PROPERTIES AND INTO THE PUBLIC STORM WATER FACILITIES.
- ALL LANDSCAPE BEDS AND TREE RINGS TO BE MULCHED WITH MULCH TO A DEPTH OF NO LESS THAN 3".
- NO PLANTING TO BE INSTALLED UNTIL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
- IF THE LANDSCAPE CONTRACTOR PERCEIVES ANY DEFICIENCIES IN THE PLANT SELECTIONS, SOIL CONDITIONS, OR ANY OTHER SITE CONDITION WHICH MIGHT NEGATIVELY AFFECT PLANT MATERIAL ESTABLISHMENT, SURVIVAL, OR GUARANTEE, THEY SHALL BRING THESE DEFICIENCIES TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
- PRIOR TO ANY LAND CLEARING OR CONSTRUCTION, TREE PROTECTION FENCING IS TO BE INSTALLED BY THE CONTRACTOR. THIS FENCING SHALL BE INSTALLED AT THE DRIP LINE OF ALL TREES AND SHRUBS (TO BE PROTECTED) ACCORDING TO THE TREE PROTECTION DETAIL AND MUST BE MAINTAINED FOR THE DURATION OF THE PROJECT. NO CUTTING, FILLING OR TRESPASSING SHALL OCCUR INSIDE THE FENCED AREAS WITHOUT APPROVAL.
- ALL PLANTS TO BE INSTALLED AS PER PLANTING DETAILS. PLANT MATERIALS ARE TO BE PLANTED IN THE SAME RELATIONSHIP TO GRADE AS WAS GROWN IN NURSERY CONDITIONS. IF WET, CLAY SOILS OR POOR DRAINING SOILS ARE EVIDENT, PLANT HIGHER. REMOVE ALL TWINE, WIRE AND BURLAP FROM TOP 1/3 OF ROOT BALL AND FROM TREE TRUNKS.
- ONE SHRUB PER TYPE AND SIZE IN EACH PLANTING BED AND EVERY TREE SHALL BE CLEARLY IDENTIFIED (COMMON OR LATIN NOMENCLATURE) WITH A PLASTIC TAG WHICH SHALL NOT BE REMOVED PRIOR TO OWNER ACCEPTANCE.
- SEED AND/OR SOD ALL AREAS DISTURBED DUE TO GRADING AND CONSTRUCTION ACTIVITIES. WHERE SOD/SEED ABUTS PAVED SURFACES, FINISHED GRADE OF SOD/SEED SHALL BE HELD 1" BELOW SURFACE ELEVATION OF TRAIL, SLAB, CURB, ETC. SOD SHALL BE LAID PARALLEL TO THE CONTOURS AND SHALL HAVE STAGGERED JOINTS. ON SLOPES STEEPER THAN 3:1 OR IN DRAINAGE SWALES, THE SOD SHALL BE STAKED TO THE GROUND.
- PRUNE, THIN AND SHAPE TREES AND SHRUBS ACCORDING TO STANDARD HORTICULTURAL PRACTICES. APPLY MINIMUM 3" MULCH CUP AT ALL TREES NOT PLANTED IN PLANTING BEDS.
- ALL LANDSCAPE AREAS SHALL HAVE PROPER DRAINAGE THAT PREVENTS EXCESS WATER FROM STANDING AROUND TREES AND SHRUBS.
- IMMEDIATELY MULCH WITH PINE STRAW AND WATER ALL PLANTS AND TREES OR COMPLETE WITHIN 16 HOURS AFTER INSTALLATION.
- SOIL MIXTURE SHALL BE 40% TOPSOIL, 40% PEAT MOSS AND 20% SANDY LOAM.



- NOTES:
- NEVER CUT A CENTRAL LEADER. PRUNE BRANCHES ONLY IF BROKEN OR DAMAGED.
 - REMOVE TOP 1/4 OF BURLAP, TWINE, ROPE, AND LOOSEN TOP OF BASKET FROM ROOT BALL.
 - TOP OF ROOT BALL TO BE 2" ABOVE FINISHED GRADE. DO NOT PLACE ADDITIONAL SOIL ON TOP OF ROOT BALL.
 - DO NOT STAKE TREE UNLESS SLOPE REQUIRES STABILIZATION.
 - FOR INSTALLATION WITH CITY GREEN SUBSURFACE STRUCTURES AND SOIL CELLS, INSTALL TREES PER MANUFACTURER'S INSTRUCTIONS.

A TREE PLANTING DETAIL

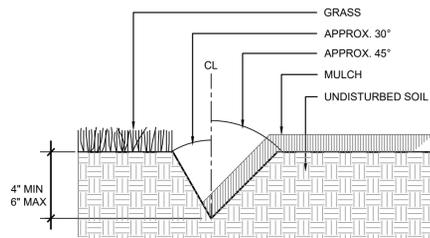
LP100 NOT TO SCALE



- NOTES:
- REMOVE CONTAINERIZED PLANTS FROM THEIR CONTAINER.
 - REMOVE BURLAP, TWINE, ROPE AND BASKET FROM 1/3 TOP OF ROOTBALL IF BOUND IN BURLAP.
 - PRUNE ROOTS IF ROOTBOUND.
 - REMOVE ALL CONTAINERS AND NON-BIODEGRADABLE BURLAP.
 - WHEN BACKFILLING PLANT PIT, PLACE PLANTING SOIL IN TWO LIFTS. AFTER FIRST LIFT, PUDDLE SOIL IN WITH WATER TO REMOVE ALL AIR POCKETS. PLACE SECOND LIFT AND REPEAT. CONTINUE TO PUDDLE AND FILL AS NECESSARY.

B SHRUB PLANTING DETAIL

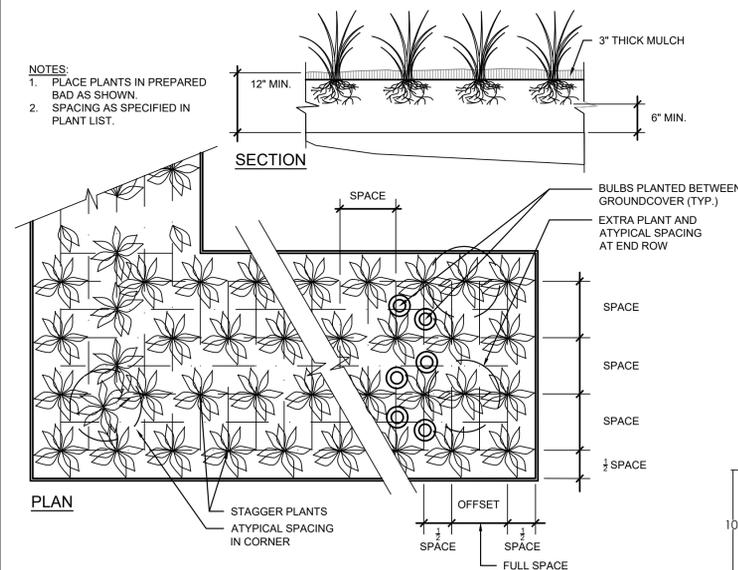
LP100 NOT TO SCALE



- NOTES:
- EXCAVATE TRENCH BY HAND WITH SPADE. ADD EXCESS SOIL TO ADJACENT PLANT BED AFTER PULLING BACK EXISTING MULCH. RAKE SOIL AND SMOOTH BEFORE MULCHING.

C TRENCH EDGE DETAIL

LP100 NOT TO SCALE



D GROUND COVER PLANTING DETAIL

LP100 NOT TO SCALE

E MEADOW MIX PLANTING PATTERN

LP100 NOT TO SCALE

- PANICUM VIRGATUM 'NORTHWIND' / NORTHWIND SWITCH GRASS (30% - 36" O.C.)
- ⊕ RUDBEKIA FULGIDA / BLACK-EYED SUSAN (30% - 24" O.C.)
- △ LOBELIA CARDINALIS / CARDINAL FLOWER (25% - 24" O.C.)
- ASCLEPIAS TUBEROSA / BUTTERFLY WEED (15% - 24" O.C.)

PLANT SCHEDULE

SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME	CONT	CAL	SIZE	SPREAD	REMARKS
TREES								
	ACEB	10	ACER BUERGERIANUM / TRIDENT MAPLE	B & B	3" CAL	10'-12'	5-6'	
	AESP	6	AESCULUS PAVIA / RED BUCKEYE	15 GAL				
	JUNV	9	JUNIPERUS VIRGINIANA / EASTERN RED CEDAR	15 GAL	1.5" CAL	6'		
	LAGN	1	LAGERSTROEMIA X 'NATCHEZ' / GRAPE MYRTLE	30 GAL	3" CAL	12'-14'	4-5'	STANDARD, SINGLE STEM
	MAGB	1	MAGNOLIA GRANDIFLORA 'BRACKENS BROWN BEAUTY' / BRACKEN'S BEAUTY SOUTHERN MAGNOLIA	30 GAL	3" CAL	6'-10'	4-5'	
	QUES	9	QUERCUS SHUMARDII / SHUMARD OAK	B & B	3" CAL	12'-14'	5-6'	
	ULMP	6	ULMUS AMERICANA 'PRINCETON' / PRINCETON AMERICAN ELM	B & B	3" CAL	12'-14'	5-6'	

SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME	CONT	SIZE	SPREAD	SPACING	REMARKS
SHRUBS								
	DIET	97	DIETES IRIDIODES / WHITE AFRICAN IRIS	3 GAL	12"-18"	12"-18"	36" o.c.	
	ITEV	44	ITEA VIRGINICA / VIRGINIA SWEETSPICE	3 GAL			48" o.c.	
	JUNW	120	JUNIPERUS HORIZONTALIS 'WILTONII' / BLUE RUG JUNIPER	1 GAL	0.5' - 1'	18"-24"	48" o.c.	
	MYRC	19	MYRICA CERIFERA / WAX MYRTLE	7 GAL	1.5' - 2'	1'-1.5'	60" o.c.	
	PANS	30	PANICUM VIRGATUM 'SHENANDOAH' / SHENANDOAH SWITCH GRASS	3 GAL			48" o.c.	
	RHOA	29	RHODODENDRON ATLANTICUM / COAST AZALEA	3 GAL			60" o.c.	

SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME	CONT	SIZE	SPREAD	SPACING	REMARKS
GROUND COVERS								
	SOD	5,349 SF	CYNODON DACTYLON / BERMUDA GRASS	SOD				
	MM	616	MM(A) / MEADOW MIX	1 GAL			24" o.c.	
	PANV	192	PANICUM VIRGATUM 'CAPE BREEZE' / NORTHWIND SWITCH GRASS	1 GAL			36" o.c.	

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

Professional	Discipline
Transportation Engineering	Planning
Building Inspections	Planning - Transportation
Water Resources - Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

Revision By Appd. YYMM.DD

Revision	By	Appd.	YYMM.DD
07 SIGNATURE SET			24.08.09
06 TRC_6TH_SUBMITTAL			24.07.29
05 TBC_5TH_SUBMITTAL			24.05.31
04 TRC_4TH_SUBMITTAL			24.04.01
03 TRC_3RD_SUBMITTAL			24.03.01
02 TRC_2ND_SUBMITTAL			22.03.1
01 TRC_1ST_SUBMITTAL			22.02.0

Issued By Appd. YYMM.DD

Permit Seal



8-8-24
Client/Project
TOWN OF APEX
SAUNDERS STREET
PARKING LOT
APEX, NC

Title
LANDSCAPE DETAIL, NOTES AND SCHEDULE

Project No. 178440238 Scale AS NOTED

Drawing No. LP500 Sheet 41 of 45 Revision 0



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ABBREVIATIONS

ARCH. ARCHITECT	HORIZ. HORIZONTAL
B/ BOTTOM OF	H.S. HEADED STUD
BRG. BEARING	IN. INCHES
BOTT. BOTTOM	INFO. INFORMATION
C/C CENTER-TO-CENTER	INT. INTERIOR
C.J. CONTROL JOINT	K KIPS
CLR. CLEAR	KSI KIPS PER SQUARE INCH
COL. COLUMN	LLH LONG LEG HORIZONTAL
CONC. CONCRETE	LLV LONG LEG VERTICAL
CONN. CONNECTION	LW LONG WAYS
CONT. CONTINUOUS	MANUF. MANUFACTURER
COORD. COORDINATE	MAX. MAXIMUM
CMU CONCRETE MASONRY UNIT	MECH. MECHANICAL
DIM. DIMENSION	MIN. MINIMUM
DIA. DIAMETER	PL. PLATE
DIST. DISTANCE	PSF POUNDS PER SQUARE FOOT
DWGS. DRAWINGS	PSI POUNDS PER SQUARE INCH
EL. ELEVATION	QTY QUANTITY
E.F. EACH FACE	REF. REFERENCE
EMBED. EMBEDMENT	REF. REINFORCED
ENG. ENGINEER	S.F. STEPPED FOOTING
E.O.R. ENGINEER OF RECORD	SQU. SQUARE
EQ. EQUAL	STL. STEEL
E.S. EACH SIDE	S.W. SHORT WAYS
E.W. EACH WAY	T/ TOP OF
EXP. EXPANSION	TYP. TYPICAL
EXT. EXTERIOR	U.N.O. UNLESS NOTED OTHERWISE
FABR. FABRICATOR	VCJ VERTICAL CONTROL JOINT
F.F. FINISHED FLOOR	VMCJ VERTICAL MASONRY CONTROL JOINT
FFE FINISHED FLOOR ELEVATION	W/ WITH
FTG. FOOTING	WWF WELDED WIRE FABRIC
GA. GAUGE	
GALV. GALVANIZED	

GENERAL NOTES

- 1.0 GENERAL**
- REFERENCE CIVIL DRAWINGS FOR SITE WALL ELEVATIONS, LENGTHS, AND ORIENTATION.
 - DRAWINGS SHOW TYPICAL AND CERTAIN SPECIFIC CONDITIONS ONLY. FOR DETAILS NOT SPECIFICALLY SHOWN, PROVIDE DETAILS SIMILAR TO THOSE SHOWN.
 - VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS BEFORE STARTING WORK. NOTIFY ENGINEER OF RECORD OF ANY DISCREPANCY
 - THE DESIGN, ADEQUACY AND SAFETY OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC., IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
 - COORDINATE STRUCTURAL CONTRACT DOCUMENTS WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND CIVIL. NOTIFY ENGINEER OF RECORD OF ANY CONFLICT AND/OR OMISSION. CONTRACTOR SHALL MAKE NO DEVIATION FROM DESIGN DRAWINGS WITHOUT WRITTEN APPROVAL OF THE ENGINEER OF RECORD. FOR ADDITIONAL OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS, SEE ARCHITECTURAL, MECHANICAL AND PLUMBING DRAWINGS.
 - FOR DIMENSIONS NOT SHOWN, SEE CIVIL DRAWINGS.
 - REVIEW OF SUBMITTALS AND/OR SHOP DRAWINGS BY THE ENGINEER IS FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS, FABRICATION, CONSTRUCTION METHODS, COORDINATION OF SUB-TRADES, DETAIL DESIGN COMPONENTS, AND ERRORS OR OMISSIONS ON SHOP DRAWINGS.
 - ANY BRAND SPECIFIC MATERIALS MAY BE SUBSTITUTED WITH AN EQUIVALENT PRODUCT BY AN ALTERNATE MANUFACTURE IF APPROVED BY THE ENGINEER OF RECORD, U.N.O.
 - FOR PIPES PASSING THROUGH CONCRETE WALLS, SEE CIVIL DRAWINGS FOR LOCATION.
- 2.00 GEOTECHNICAL**
- THE DESIGN OF FOUNDATIONS IS BASED ON THE FOLLOWING PARAMETERS:

ALLOWABLE SOIL BEARING PRESSURE =	3,000 PSF
SOIL TYPICAL UNIT WEIGHT =	115 PCF
WATER TYPICAL UNIT WEIGHT =	62.4 PCF
(APPLIED AS ADDITIONAL WEIGHT BEHIND GRAVITY RETAINING WALL)	
SOIL FRICTION ANGLE =	28 DEGREES
COEFFICIENT OF SLIDING =	0.35
SURCHARGE LOAD AT TOP OF WALL =	0 PSF
 - SITE PREPARATION AND COMPACTION SHALL COMPLY WITH THE REPORT RECOMMENDATIONS OF FALCON ENGINEERING, INC., PROJECT No. G20066.00, DATED JANUARY 18, 2022. THE REPORT SHALL BE CONSIDERED PART OF THE CONTRACT DOCUMENTS.
 - A QUALIFIED GEOTECHNICAL ENGINEER SHALL VERIFY CONDITION AND/OR ADEQUACY OF ALL SUBGRADES, FILLS AND BACKFILLS BEFORE PLACEMENT OF FOUNDATIONS, FOOTINGS, SLABS, WALLS, FILLS, BACKFILLS, ETC.
- 3.0 REINFORCED CONCRETE**
- ALL CONCRETE WORK SHALL CONFORM TO ACI 301-16, SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS. DESIGN IS BASED ON ACI 318-14, BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
 - UNLESS NOTED OTHERWISE, ALL CONCRETE SHALL BE NORMAL WEIGHT AND HAVE THE FOLLOWING MINIMUM 28-DAY COMPRESSIVE STRENGTHS:

FOUNDATIONS	3,000 PSI (MAX W/C RATIO = 0.50)
WALLS	4,000 PSI (MAX W/C RATIO = 0.45)
 - AIR ENTRAINMENT = 6% +/- 1.5%
 - USE OF CALCIUM CHLORIDE, CHLORIDE IONS OR OTHER SALTS IN CONCRETE IS NOT PERMITTED.
 - CHAMFER OR ROUND ALL EXPOSED CORNERS MINIMUM 3/4".
 - DETAIL CONCRETE REINFORCEMENT AND ACCESSORIES IN ACCORDANCE WITH ACI 315-16, DETAILING MANUAL. SUBMIT SHOP DRAWINGS FOR APPROVAL SHOWING ALL FABRICATION DIMENSIONS AND LOCATIONS FOR PLACING REINFORCING STEEL AND ACCESSORIES.
 - REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE.
 - REINFORCING STEEL SHALL HAVE THE FOLLOWING CONCRETE COVER UNLESS NOTED OTHERWISE:

A. CONCRETE CAST AGAINST EARTH (NOT FORMED)	3"
B. FORMED CONCRETE EXPOSED TO THE EARTH OR WEATHER	
#6 THROUGH #18 BARS	2"
#5 BARS AND SMALLER	1 1/2"
C. CONCRETE NOT EXPOSED TO EARTH OR WEATHER	
SUSPENDED SLABS AND WALLS	
#14 THROUGH #18 BARS	1 1/2"
#11 BARS AND SMALLER	1"
BEAMS (STIRRUPS) AND COLUMNS (TIES)	1 1/2"
 - DO NOT PLACE PIPES OR DUCTS EXCEEDING ONE-THIRD THE SLAB OR WALL THICKNESS WITHIN THE SLAB OR WALL UNLESS SPECIFICALLY SHOWN AND DETAILED ON STRUCTURAL DRAWINGS. ANY PIPES SHALL BE BETWEEN THE OUTER HORIZONTAL AND VERTICAL LAYERS OF REINFORCED.
 - DO NOT WELD OR TACK WELD REINFORCING STEEL UNLESS APPROVED OR DIRECTED BY THE STRUCTURAL ENGINEER.
 - ALL REINFORCING STEEL PLACEMENT SHALL BE INSPECTED PER IBC 2018 SEE SPECIAL INSPECTIONS SHEET FOR ADDITIONAL INFORMATION.
 - WALLS AND OTHER INTERSECTING ELEMENTS SHALL HAVE CORNER BARS TO PROVIDE CONTINUITY. USE CRSI STANDARDS OR AS SHOWN ON THE DRAWINGS.
- 4.0 CODES**
- ALL CONSTRUCTION SHALL COMPLY WITH THE FOLLOWING CRITERIA:
- INTERNATIONAL BUILDING CODE, 2018.
 - ACI 318-14, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.
 - ASCE/SEI 7-16, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

Transportation Engineering	Planning
Building Inspections	Planning - Transportation
Water Resources - Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
Electric	

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07 SIGNATURE_SET	--	--	24.08.09
06 TRC_6TH_SUBMITTAL	--	--	24.07.29
05 TRC_5TH_SUBMITTAL	--	--	24.05.31
04 TRC_4TH_SUBMITTAL	--	--	24.04.01
03 TRC_3RD_SUBMITTAL	--	--	24.03.01
02 TRC_2ND_SUBMITTAL	--	--	22.03.1
01 TRC_1ST_SUBMITTAL	--	--	22.02.0

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Client/Project

TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

Title
GENERAL STRUCTURAL NOTES

Project No. 178440238 Scale AS NOTED

Drawing No. S-500 Sheet 42 of 45 Revision 0



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Transportation Engineering	Planning
Building Inspections	Planning - Transportation
Water Resources - Utility Engineering	Fire
Water Resources Stormwater and S&EC	Parks, Recreation & Cultural Resources
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Revision _____ By _____ Appd. _____ YY.MM.Dd

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04 TRC_4TH_SUBMITTAL	---	---	24.04.01
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02 TRC_2ND_SUBMITTAL	---	---	22.03.1
01 TRC_1ST_SUBMITTAL	---	---	22.02.0

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TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

Title

SPECIAL INSPECTIONS

Project No. _____ Scale _____

178440238 AS NOTED

Drawing No. _____ Sheet _____ Revision _____

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IBC - TABLE 1705.3 REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION				
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCE STANDARD	IBC REFERENCE
1. INSPECTION OF REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT.	—	X	ACI 318: CH. 20, 25.2, 25.3, 26.5.1-26.5.3	1908.4
2. REINFORCING BAR WELDING: a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A 706; b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"; AND c. INSPECT ALL OTHER WELDS.	— — X	X X —	AWS D1.4 ACI 318: 26.5.4	—
3. INSPECT ANCHORS CAST IN CONCRETE	—	X	ACI 318: 17.8.2	—
4. INSPECTION ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS: a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS. b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a.	X —	— X	ACI 318: 17.8.2.4 ACI 318: 17.8.2	—
5. VERIFYING USE OF REQUIRED DESIGN MIX.	—	X	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
6. AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	—	ASTM C 172 ASTM C 31 ACI 318: 26.4.5, 26.12	1908.10
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	—	ACI 318: 26.4.5	1908.6, 1908.7, 1908.8
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	—	X	ACI 318: 26.4.7-26.4.9	1908.9
9. INSPECT PRESTRESSED CONCRETE FOR: a. APPLICATION OF PRESTRESSING FORCES; AND b. GROUTING OF BONDED PRESTRESSING TENDONS.	X X	— —	ACI 318: 26.9.2.1 ACI 318: 26.9.2.3	—
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	—	X	ACI 318: CH 26.8	—
11. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	—	X	ACI 318: 26.10.2	—
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	—	X	ACI 318: 26.10.1(b)	—

FOR SI: 1 INCH = 25.4 mm.
a. WHERE APPLICABLE, SEE ALSO SECTION 1705.12, SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE.
b. SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH 17.8.2 in ACI 318, OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF THE WORK.

SPECIAL INSPECTION SHEET NOTES:

- THE STRUCTURAL ENGINEER (STANTEC) IS NOT RESPONSIBLE FOR INSPECTIONS AND TESTINGS. GENERAL CONTRACTOR TO CARRY IN THEIR CONTRACT.
- GENERAL CONTRACTOR'S TESTING LABORATORY SHALL PROVIDE SPECIAL INSPECTION SERVICES IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE FOR THE FOLLOWING ITEMS LISTED ON THESE SHEETS. ONLY INSPECTIONS AND TESTS ARE REQUIRED FOR THE APPLICABLE MATERIALS ON THE PROJECT.

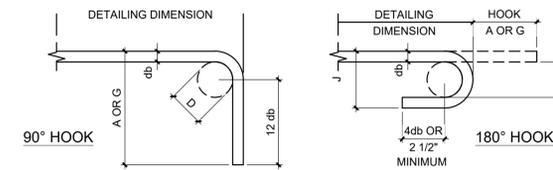
IBC - TABLE 1705.6 REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS			
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODICALLY SPECIAL INSPECTION	
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	—	X	
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	—	X	
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	—	X	
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	—	
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	—	X	

WALL HORIZONTAL BAR TENSION DEVELOPMENT AND LAP SPLICE LENGTHS GRADE 60 REINFORCEMENT, NORMAL WEIGHT CONCRETE							
BAR SIZE	LAP CLASS	f _c = 3000 PSI	f _c = 4000 PSI	f _c = 5000 PSI	f _c = 6000 PSI	f _c = 7000 PSI	f _c = 8000 PSI
#3	A	13	12	12	12	12	12
	B	17	16	16	16	16	16
#4	A	22	19	17	16	14	14
	B	29	25	23	21	19	19
#5	A	32	28	25	23	21	20
	B	42	37	33	30	28	26
#6	A	43	37	34	31	28	27
	B	56	49	45	41	37	36
#7	A	69	60	54	49	46	43
	B	90	78	71	64	60	56
#8	A	86	74	67	61	56	53
	B	112	97	88	80	73	69
#9	A	104	90	81	74	68	64
	B	136	117	106	97	89	84
#10	A	125	108	97	88	82	77
	B	163	141	127	115	107	101
#11	A	146	127	114	104	96	90
	B	190	166	149	136	125	117

- NOTES:
- ALL SPLICE LENGTHS ARE IN INCHES.
 - THIS TABLE SHALL BE USED FOR WALL HORIZONTAL BARS ONLY. REFER TO OTHER DEVELOPMENT LENGTH TABLES FOR WALL VERTICAL BARS AND OTHER MEMBERS.
 - ONLY LAP CLASS B IS APPLICABLE FOR THIS DESIGN.

WALL VERTICAL BAR TENSION DEVELOPMENT AND LAP SPLICE LENGTHS GRADE 60 REINFORCEMENT, NORMAL WEIGHT CONCRETE													
BAR SIZE	LAP CLASS	f _c = 3000 PSI		f _c = 4000 PSI		f _c = 5000 PSI		f _c = 6000 PSI		f _c = 7000 PSI		f _c = 8000 PSI	
		CATEGORY 1	CATEGORY 2										
#4	A	17	17	15	15	15	15	15	15	15	15	15	15
	B	22	22	19	19	19	17	17	16	16	15	15	15
#5	A	21	25	19	21	19	19	19	19	19	19	19	19
	B	27	32	24	28	21	25	19	23	19	21	19	20
#6	A	25	33	23	29	23	26	23	24	23	23	23	23
	B	33	43	28	37	25	34	23	31	23	28	23	27
#7	A	41	48	35	42	32	38	29	34	27	32	27	30
	B	53	63	46	54	41	49	38	45	35	41	33	39
#8	A	51	55	44	48	40	43	36	39	34	36	31	34
	B	66	72	57	62	51	56	47	51	44	47	41	44
#9	A	62	62	54	54	48	48	44	44	41	41	38	38
	B	81	81	70	70	63	63	57	57	53	53	50	50
#10	A	71	71	61	61	55	55	50	50	47	47	44	44
	B	92	92	80	80	71	71	65	65	60	60	56	56
#11	A	84	84	73	73	65	65	60	60	55	55	52	52
	B	109	109	95	95	85	85	77	77	72	72	67	67

- NOTES:
- ALL SPLICE LENGTHS ARE IN INCHES.
 - THIS TABLE SHALL BE USED FOR WALL VERTICAL BARS ONLY. REFER TO OTHER DEVELOPMENT LENGTH TABLES FOR WALL HORIZONTAL BARS AND OTHER MEMBERS.
 - THE TENSION DEVELOPMENT LENGTH (L_d) IS EQUAL TO THE SCHEDULED "CLASS A" LAP SPLICE LENGTH.
 - FOR DETERMINING THE BAR CATEGORY, "db" IS DEFINED AS THE DIAMETER OF THE LARGER BAR BEING SPLICED.
 - THE "CATEGORY 1" LAP LENGTH SHALL BE USED WHEN THE CLEAR SPACING BETWEEN BARS AT THE SPLICE IS EQUAL TO OR GREATER THAN 3db.
 - THE "CATEGORY 2" LAP LENGTH SHALL BE USED WHEN THE CLEAR SPACING BETWEEN BARS AT THE SPLICE IS LESS THAN 3db AND GREATER THAN 2db.
 - WHEN THE CLEAR SPACING BETWEEN BARS AT THE SPLICE IS EQUAL TO OR LESS THAN 2db, SPLICES SHALL BE STAGGERED SO THAT NO MORE THAN 50% OF BARS ARE SPLICED AT ANY GIVEN LOCATION. REFER TO "TYPICAL CLEAR SPACING CRITERIA OF LAP SPLICED BARS, STAGGERED SPLICES" FOR CRITERIA TO DETERMINE CLEAR SPACING "S" FOR BARS AT STAGGERED SPLICES.
 - FOR EPOXY-COATED BARS, MULTIPLY THE TABULATED SPLICE LENGTHS BY 1.5.
 - WHEN LAP SPLICING BARS OF DIFFERENT SIZES, THE LAP LENGTH IS DETERMINED BY THE SMALLER BAR BUT MAY NOT BE LESS THAN THE "CLASS A" SPLICE LENGTH OF THE LARGER BAR.
 - ONLY LAP CLASS B IS APPLICABLE FOR THIS DESIGN.

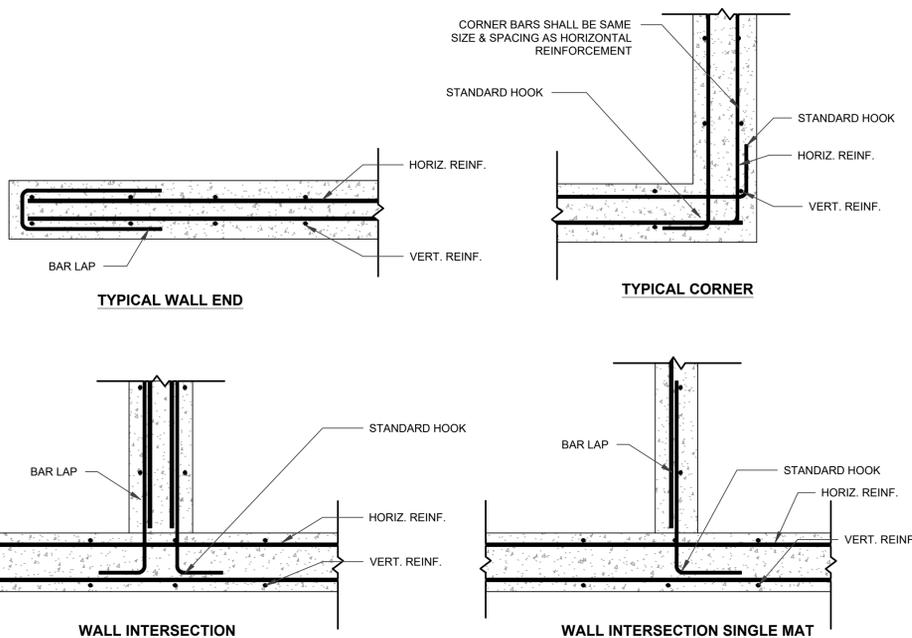


END HOOK DIMENSIONS				
BAR SIZE	FINISHED BEND DIAMETER D, (INCHES)	180° HOOKS		90° HOOK
		A OR G, (INCHES)	J, (INCHES)	A OR G, (INCHES)
#3	2 1/4	5	3	6
#4	3	6	4	8
#5	3 3/4	7	5	10
#6	4 1/2	8	6	12
#7	5 1/4	10	7	14
#8	6	11	8	16
#9	9 1/2	15	11 3/4	19
#10	10 3/4	17	13 1/4	22
#11	12	19	14 3/4	24
#14	18 1/4	27	21 3/4	31
#18	24	36	28 1/2	41

D = INSIDE DIAMETER OF END

1 TYPICAL WALL HORIZONTAL BAR TENSION DEVELOPMENT AND LAP SPLICE LENGTHS

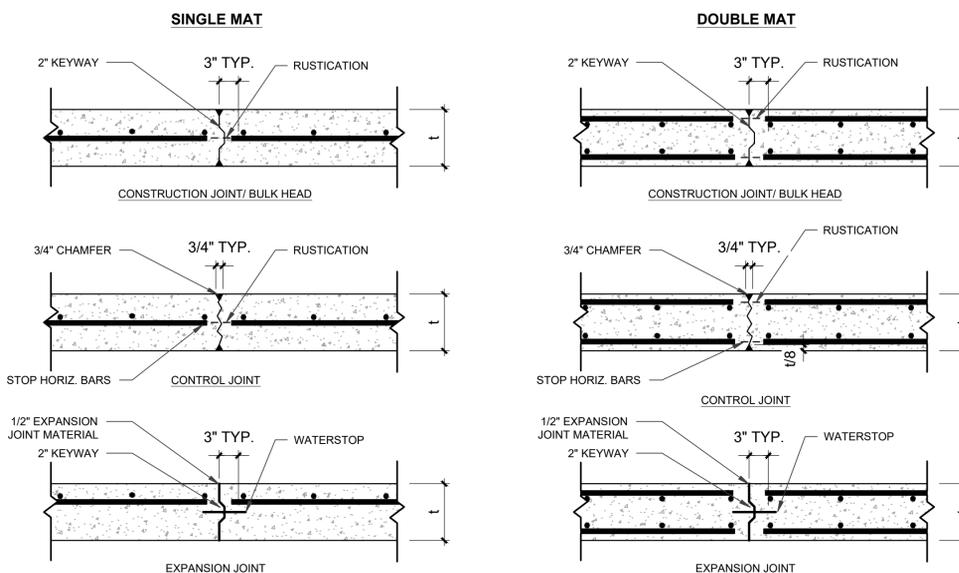
S-503 NOT TO SCALE



- NOTES:
- CLOSURE BARS SHALL BE SAME SIZE & SPACING AS HORIZONTAL REINFORCING.

2 TYPICAL WALL VERTICAL BAR TENSION DEVELOPMENT AND LAP SPLICE LENGTHS

S-503 NOT TO SCALE



NOTE: CONTROL JOINT SPACING MAX 20'-0" C/C. CONTRACTOR TO PROVIDE CONTROL JOINT SPACING LAYOUT TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO CONSTRUCTION.

5 CONCRETE VERTICAL JOINTS

S-503 NOT TO SCALE

4 TYPICAL CONCRETE WALL DETAILS

S-503 NOT TO SCALE

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Transportation Engineering	Planning
Building Inspections	Planning - Transportation
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Revision	By	Appd.	YYMM.DD
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Client/Project

TOWN OF APEX

SAUNDERS STREET
PARKING LOT
APEX, NC

Title

STRUCTURAL DETAILS - RETAINING WALLS

Project No.	Scale	
178440238	AS NOTED	
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